FHWA-INDIANA
Environmental Document

GENERAL PROJECT INFORMATION

Road No./County:	I-465 West Leg / Marion County
Designation Number:	9910900
Project Description/Termini:	Added Travel Lanes and Interchange Modifications / from South of SR 67 to 56th Street

RELEASE FOR PUBLIC INVOLVEMENT

After completing this form, I conclude that this project qualifies for the following type of Categorical Exclusion and hereby release it for NEPA public involvement (FHWA must review if Section 4(f) property is used):

Statewide CE (SCE) (Approval requires only INDOT signature)	
FHWA CE: (Approval requires both INDOT and FHWA signature)	
Environmental Assessment (EA)	X

Signature (FHWA must sign for FHWA EAs.) Date

APPROVAL

INDOT Signature Date

FHWA Signature Date
(Required for FHWA CE only. EAs require a separate FONSI)

Note: Do not approve until after Section 106 public involvement and all other environmental requirements have been satisfied.

I-465 (West Leg)
Added Travel Lanes and Interchange Modifications
from South of SR 67 to 56th Street
Marion County, Indiana

Project No. IM-465-4( )
Description No. 9910900

Environmental Assessment

Submitted Pursuant to 42 U.S.C. 4332 (2) (c)
by the
U.S. Department of Transportation
Federal Highway Administration
and
The Indiana Department of Transportation

February 2003

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1. PURPOSE OF AND NEED FOR ACTION

1.1 Purpose

The purpose of this project is to decrease congestion, upgrade interchange ramp and mainline capacities, improve the deteriorating mainline and ramp pavement and bridges, and upgrade geometric conditions to current standards on 11 miles of I-465 from SR 67 to 56th Street (Figure 1-1).

1.2 Need

The project is needed because:

- Portions of I-465 are severely congested and operate at Level of Service (LOS) E today. By the planning horizon year (2025), the LOS will fall to F over the entire project length except for the area between SR 67 and I-70, which is already four lanes in each direction and would operate at LOS E. This is well below INDOT and Federal Highway Administration (FHWA) guidelines for urban areas of LOS D.
- Pavement and bridge conditions are deteriorating and the original construction no longer meets current design standards. Reconstruction to current standards will improve traffic flow and safety.

1.3 Planning and Coordination

The project is in the *Update of the Indianapolis Regional Transportation Plan for 2025*.[1] The section between US 36 and I-74 (west) is listed for improvement in the 2000-2006 timeframe, and the balance of the corridor to the north and south is listed for improvement in the 2007-2015 timeframe. The improvements are defined as widening to 10 lanes with interchange modifications.

The *Indianapolis Regional Transportation Improvement Program* for 2002 to 2004 lists the project as being in the Preliminary Engineering and Right-of-Way/Land Acquisition phases over the next three years.

A *Thoroughfare Plan* is a component of the *Indianapolis-Marion County Comprehensive Plan*.[2] It does not specify improvements but recognizes that I-465 is part of the freeway system in Indianapolis, with full control of access.

There are several existing/proposed projects in the project area (See Figure 1-2):

1. New road construction of Hendricks County North-South Corridor from US 40 to CR 600 N.
2. New interchange construction on I-70 at Six Points Road. Construction is to begin in 2002.
3. Relocation and lowering of I-70 for airport expansion from 0.4 miles west of I-465 to 0.75 miles east of existing Six Points Road. Construction is to begin in late 2002.

[1] *Update of the Indianapolis Regional Transportation Plan for 2025*, by The Corradino Group, for the Indianapolis Metropolitan Planning Organization, April 2001.

[2] *Indianapolis-Marion County Comprehensive Plan*, Department of Metropolitan Development, Division of Planning, adopted October 1991.

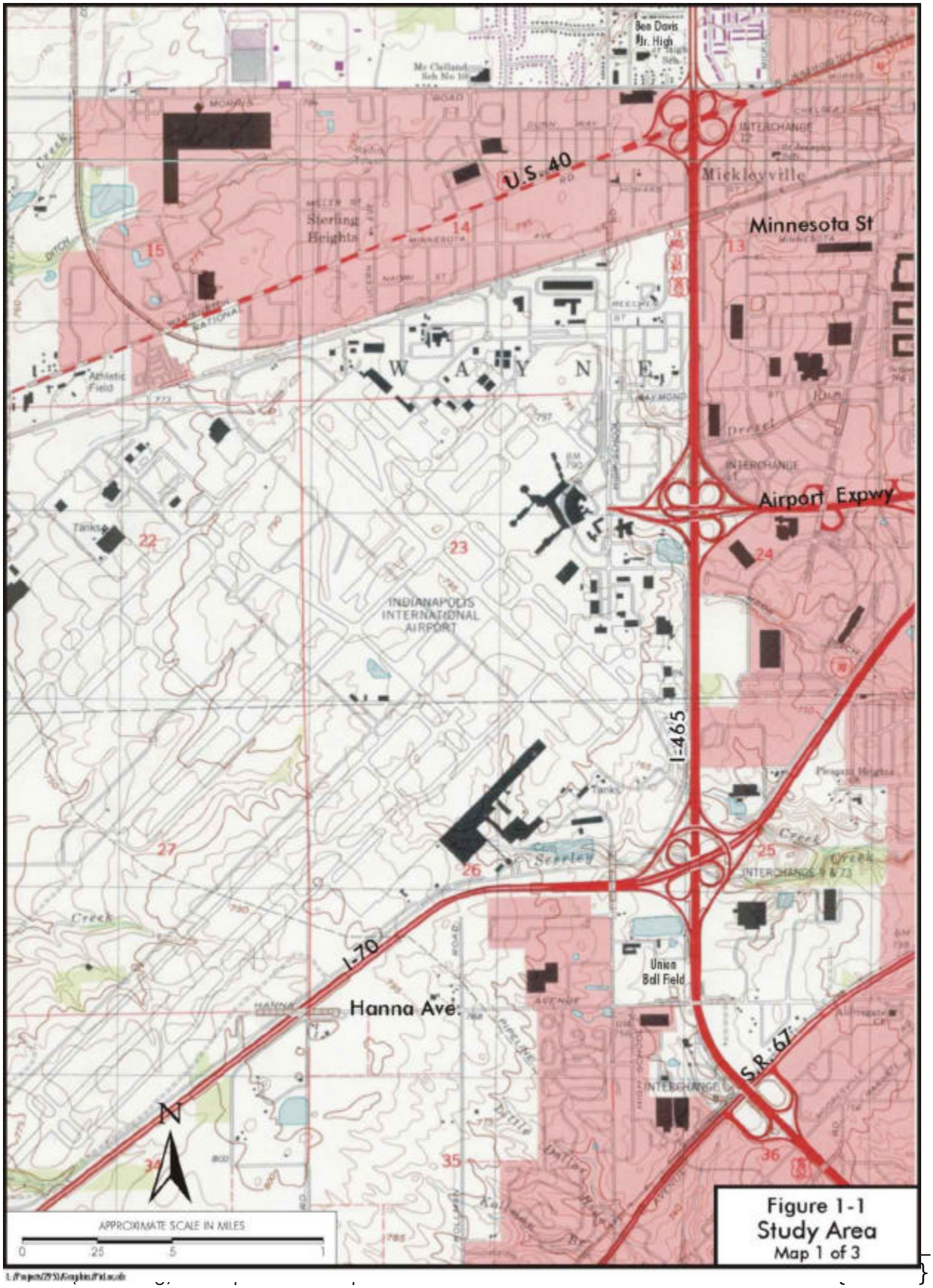


Figure 1-1
Study Area
Map 1 of 3

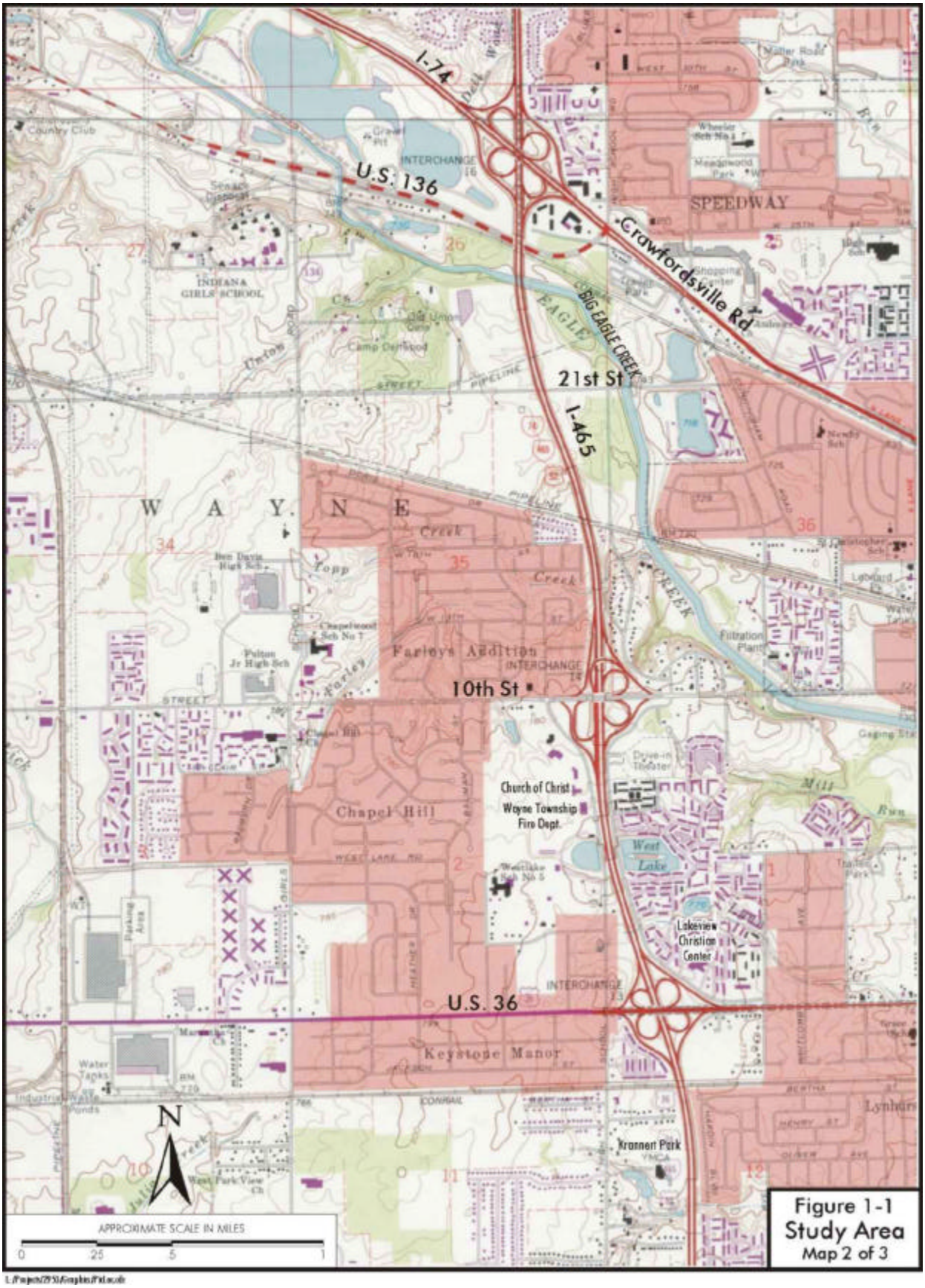


Figure 1-1
Study Area
Map 2 of 3

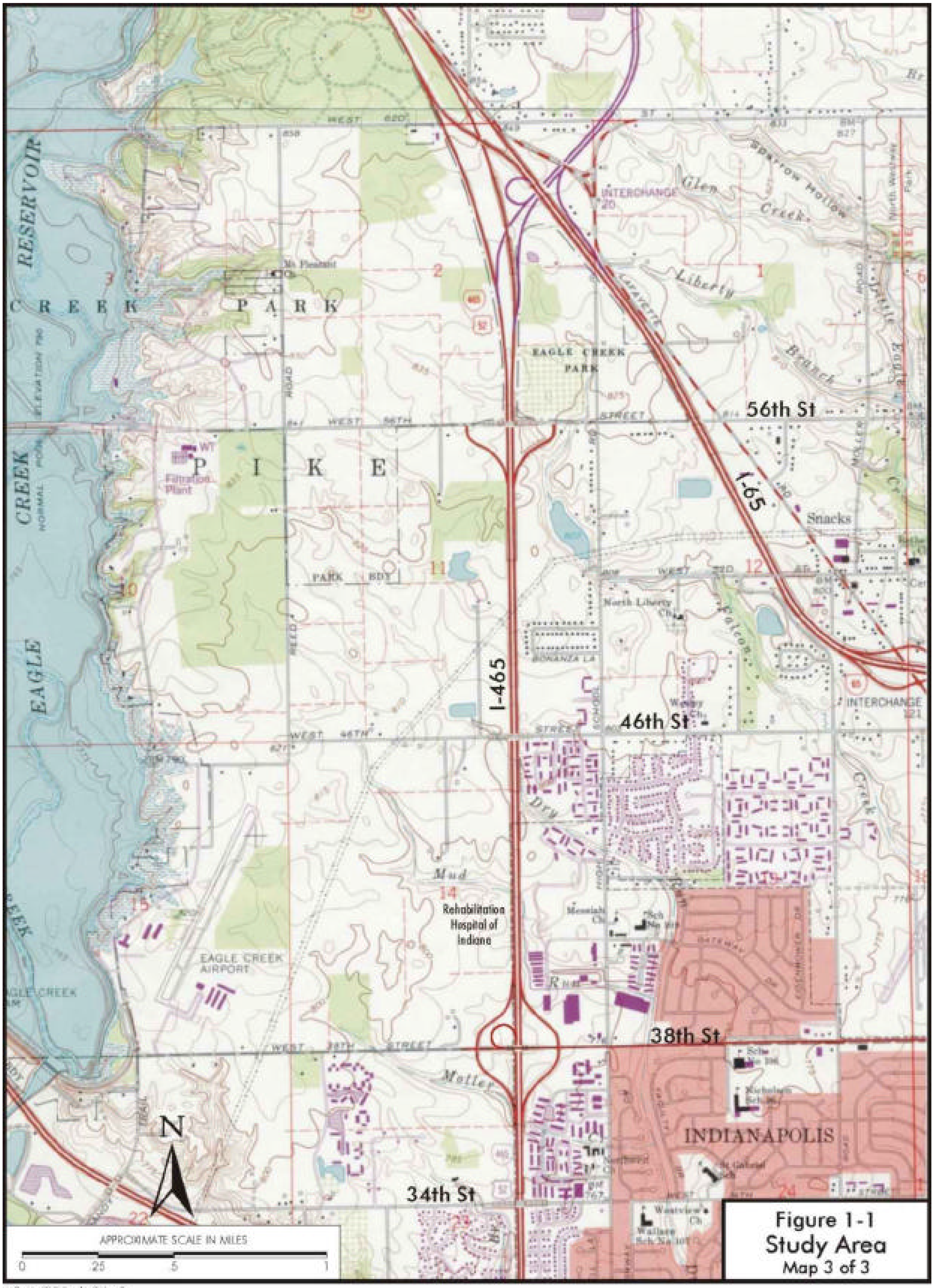


Figure 1-1
Study Area
Map 3 of 3

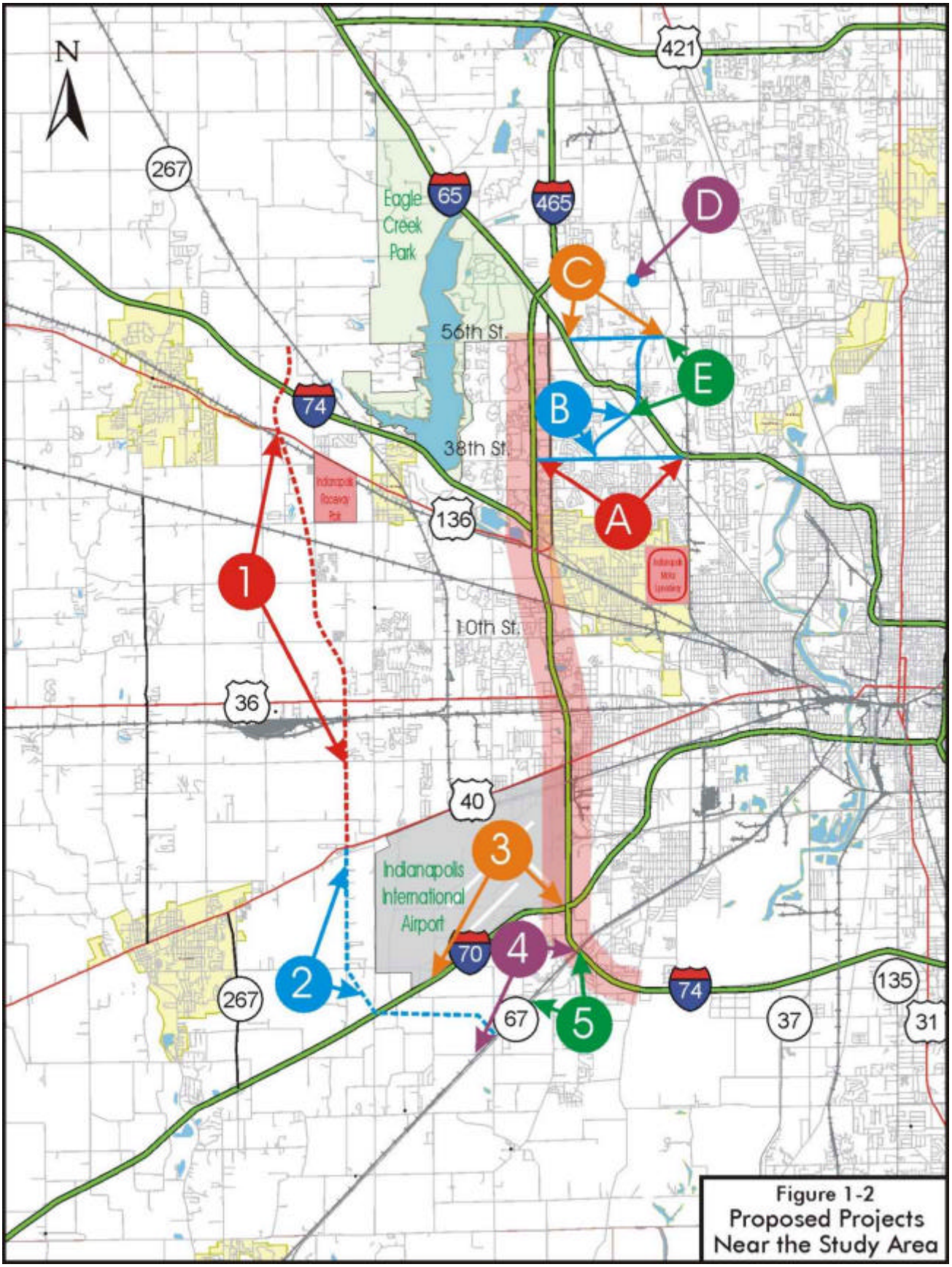


Figure 1-2
Proposed Projects Near the Study Area

Intersection improvements on SR 67 from Hendricks County Line to I-465. Construction is to begin in 2003.

5. Widening of SR 67 to a six-lane divided from Thompson Road to I-465. Construction is to begin in 2005.

In addition to the previous projects, there are several City of Indianapolis projects in the area:

A. Pavement rehabilitation on 38th Street from I-465 to I-65 to begin construction in 2003.
B. Added travel lanes from two lanes to four lanes on Pike Plaza from Lafayette Road to Moller Road to begin construction in 2003.
C. Added travel lanes from two lanes to four lanes on 56th Street from Lafayette Road to Guion Road to begin construction in 2003.
D. An intersection improvement at 62nd Street and Georgetown Road to begin construction in 2004.
E. Added travel lanes from two lanes to four lanes on Georgetown Road from Lafayette Road to 56th Street to begin construction in 2005.

There has been extensive coordination with project management of other projects to ensure that planning for I-465 is consistent with planning for those projects, particularly I-70 and improvements to SR 67. Coordination covers both physical design and project timing as it relates to both funding and maintenance of traffic during construction. Coordination has also covered lanage requirements of bridges serving local roads that pass over I-465. Pavement replacement/repair/rehabilitation on I-465 would occur at the same time as construction of new lanes to minimize traffic disruptions.

1.4 System Linkage

Few alternatives are available for north-south travel on the west side of Indianapolis resulting in local traffic using I-465 for local trips in addition to the regional and national trips on the interstate. I-465 provides the through route alternative to travel through downtown Indianapolis for vehicles moving between Chicago and Louisville. It is also designated as I-74 from exit 8 (SR 67) on I-465 to exit 16 on I-465. Thus, the road is of national, as well as local and regional significance.

1.5 Capacity/Demand

Vehicles per day (vpd) in the study area ranged in 1998 from over 93,000 between I-70 and Airport Expressway to over 147,000 between US 36 and 10th Street. By 2026, traffic volumes are expected to increase between 53 and 77 percent. The area with the highest expected percentage increase is I-70 to Airport Expressway. Traffic in that section is expected to increase 77 percent from 93,000 vpd to 165,000 vpd. In 2026, the vpd in the study area will range from 158,000 (SR 67 to I-70) to 224,000 (US 36 to 10th Street) (Table 1-1).

Table 1-1
I-465 Traffic Volumes (Vehicles Per Day)

Segment	1998	2026	Percent Increase
SR 67 to I-70	93,380	158,400	70%
I-70 to Airport Exp.	93,240	164,900	77%
Airport Exp. to US 40	122,180	190,300	56%
US 40 to US 36	136,260	209,000	53%
US 36 to 10th Street	147,040	224,300	53%
10th Street to I-74	141,360	218,300	54%
I-74 to 38th Street	117,600	184,500	57%
38th Street to 56th Street	105,160	175,600	67%

Source: Pflum, Klausmeier & Gehram Consultants, Inc.

This project is needed to improve the capacity of mainline I-465, which is now three lanes in each direction (except for four lanes between SR 67 and I-70 and four lanes southbound between US 40 and the Airport Expressway). The roadway already operates at LOS E during parts of the day between US 40 and I-74. From US 40 to US 36, the roadway operates at LOS E in the PM peak. From US 36 to 10th Street and from 10th Street to I-74, the roadway operates at LOS E in both the AM and the PM peak. In 2026 if the roadway remains three lanes in each direction the whole corridor would operate at LOS F during parts of the day. (The only exception to this is the section between SR 67 and I-70 which is already four lanes and would operate at LOS E). The roadway between I-70 and 56th Street will be at LOS F in the AM and PM peaks. With four lanes in each direction all of the mainline would still operate at LOS F during parts of the day, except the southern part of the project area, which would operate at E or better (Table 1-2). If the mainline were expanded to five lanes in each direction, or four lanes plus an auxiliary lane, the mainline would operate at no worse than LOS D. Level of Service D is the INDOT/FHWA minimum LOS that may be used on urban reconstruction projects. These data suggest at least five lanes are needed in each direction to meet the minimum reconstruction goal.

Table 1-2
Mainline Hours at Level of Service E or F

Segment	2026 3 Lanes	2026 4 lanes	2026 5 Lanes
SR 67 to I-70	3	3	0
I-70 to Airport Exp.	7	3	0
Airport Exp. to US 40	12	6	0
US 40 to US 36	22	7	0
US 36 to 10th Street	24	7	0
10th Street to I-74	19	6	0
I-74 to 38th Street	13	3	0
38th Street to 56th Street	12	3	0

[a] Southbound and northbound added together
Source: INDOT and The Corradino Group

This project is needed to improve the capacity of the ramp junctions at the interchanges with I-465 (both merges to and diverges from I-465 and ramp termini at the ends of exit ramps). In 2026 all of the interchanges with I-465 in the project area will have at least one junction that will operate at LOS F (see Table 1-3 for the LOS range for ramp junctions at the I-465 interchanges and Figure 1-3 for the LOS of existing and proposed interchange configurations). A variety of geometric improvements, plus mainline widening, will address these deficiencies.

Table 1-3
2026 Level of Service at Ramp Junctions (Existing Geometric Conditions)

Interchanges with I-465	LOS 2026
SR 67 (Kentucky Avenue)	C-F
I-70	B-F
Airport Expressway	D-F
US 40 (Washington Street)	F-F
US 36 (Rockville Road)	D-F
10th Street	B-F
I-74	B-F
38th Street	A-F

Source: INDOT and The Corradino Group

This project is also needed to alleviate weaving constraints at all of the interchanges except SR 67 and 38th Street, which do not have weaving movements in their existing configurations. The capacity of a a weaving section depends on factors such as type of weave, length of weave, travel speed and volume of vehicles changing lanes vs. the volume of vehicles remaining in the same lane. As traffic levels have increased along the corridor, with the anticipation that they will continue to increase, the majority of the weaving sections along the corridor are projected to have poor capacity. These weave sections are created by the back to back loop configurations at the existing cloverleaf interchanges. In 2026, the six interchanges in the project area that have weaving movements will have at least one weaving section that will operate at LOS F (see Table1-4 and Figure 1-3 for the LOS range for weaving sections at the I-465 interchanges). A variety of geometric improvements, plus mainline widening, will address these deficiencies.

Table 1-4
2026 Level of Service at Weaving Sections (Existing Geometric Conditions)

Interchanges with I-465	LOS 2026
I-70	C-F
Airport Expressway	B-F
US 40 (Washington Street)	A-F
US 36 (Rockville Road)	B-F
10th Street	B-F
I-74	B-F

Source: INDOT and The Corradino Group

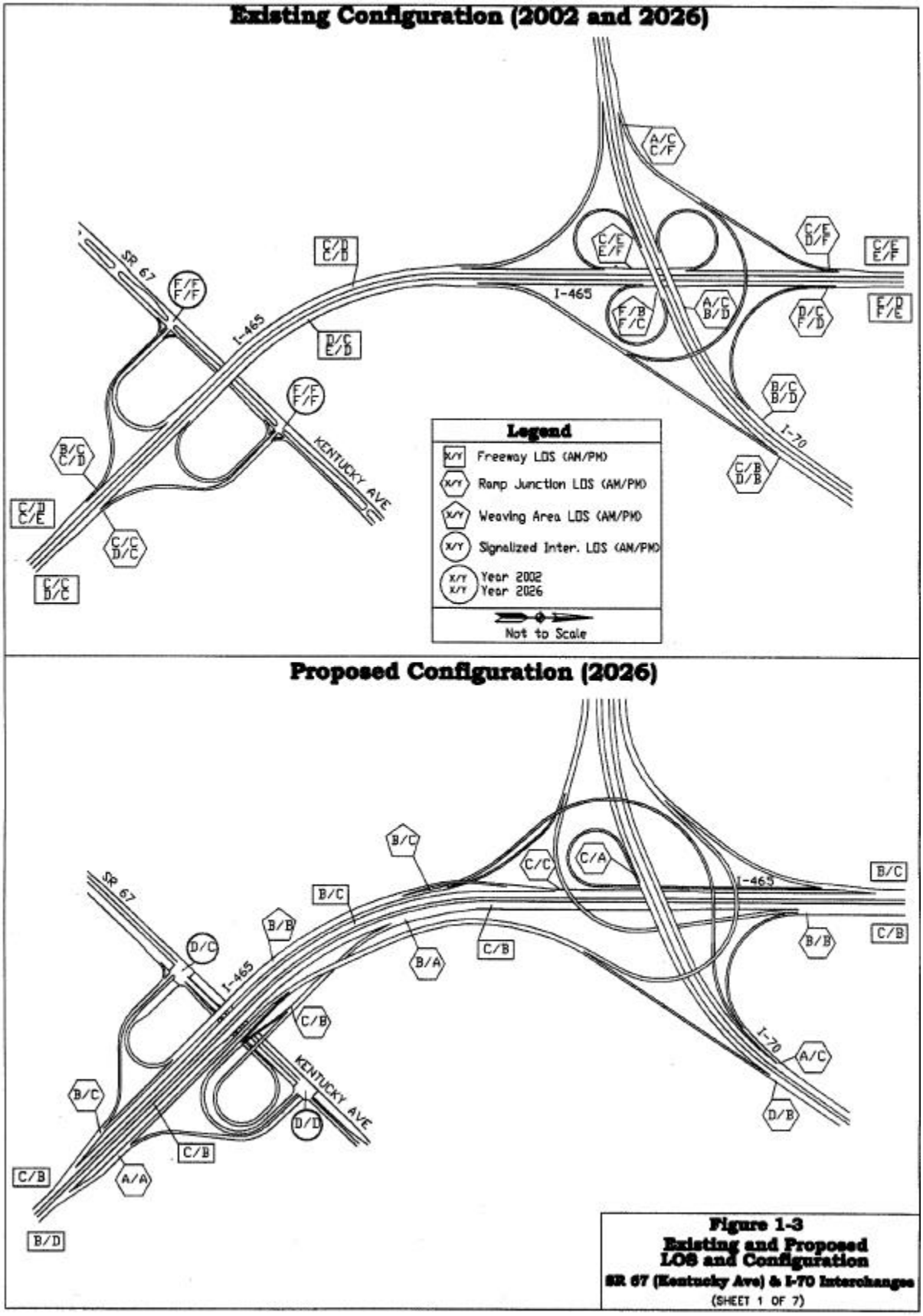
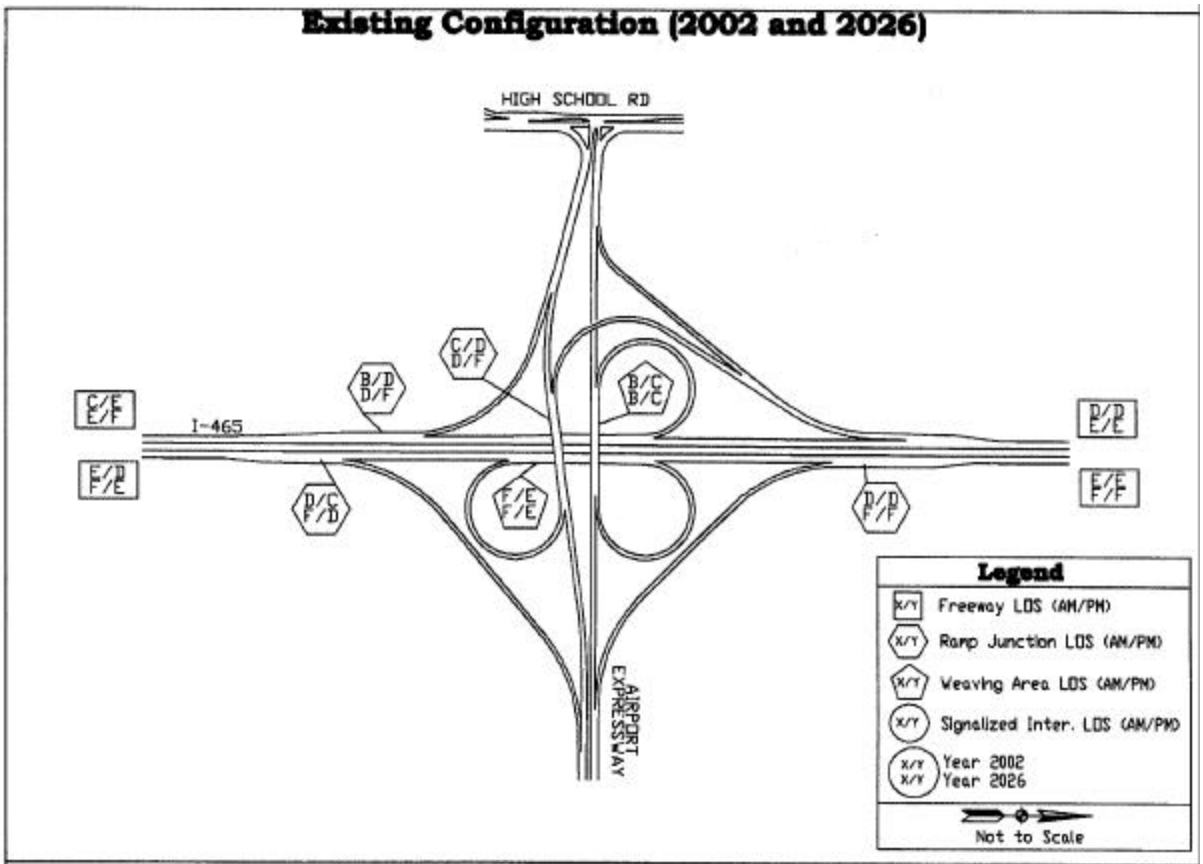


Figure 1-3
Existing and Proposed LOS and Configuration
SR 67 (Kentucky Ave) & I-70 Interchanges
(SHEET 1 OF 7)



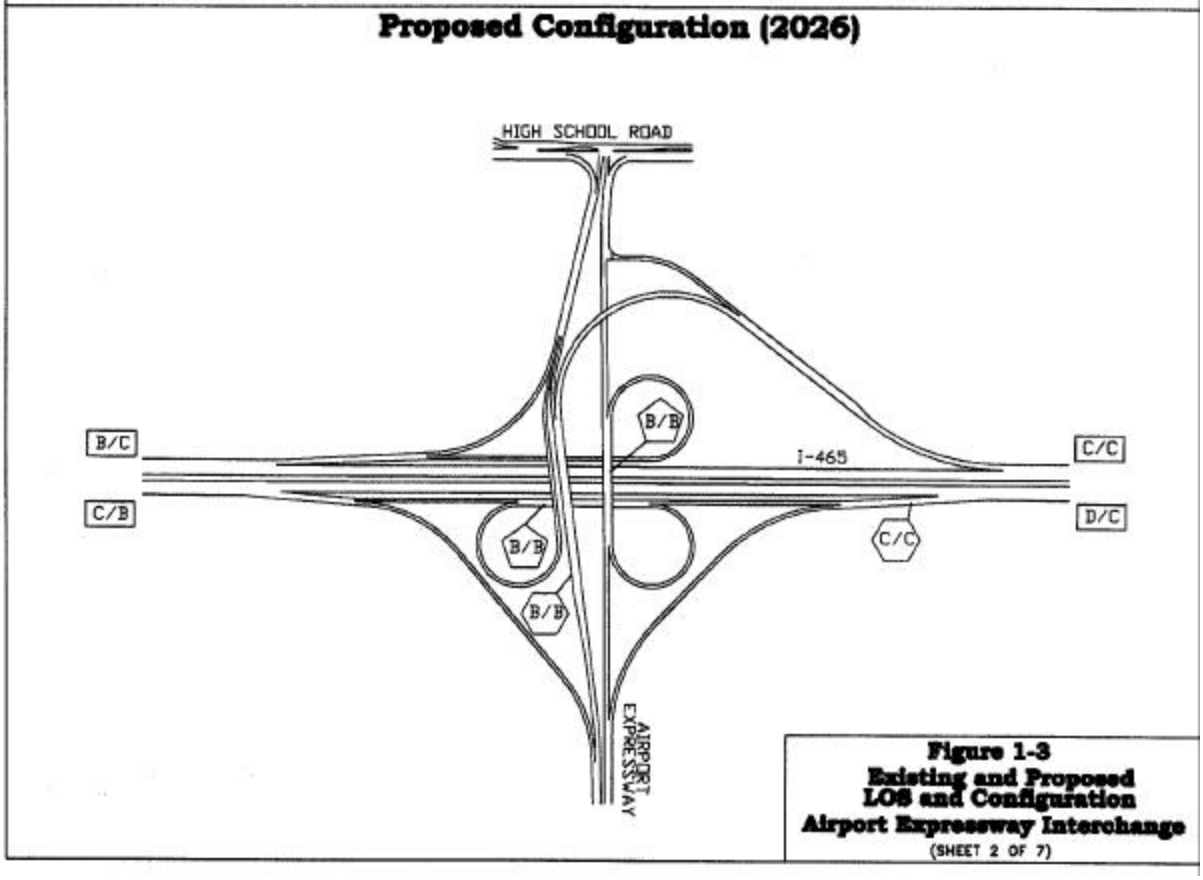


Figure 1-3
Existing and Proposed LOS and Configuration
Airport Expressway Interchange
(SHEET 2 OF 7)

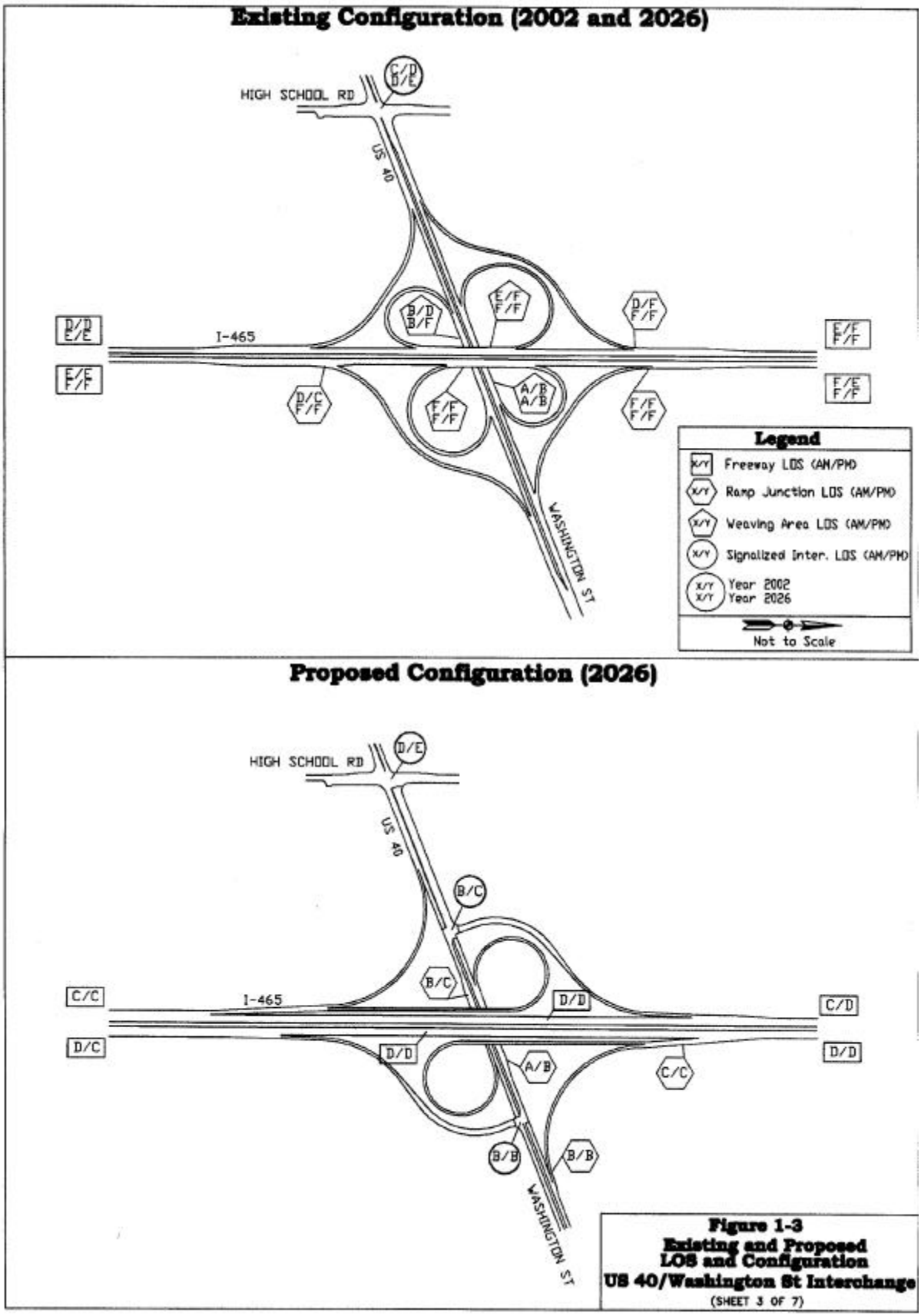


Figure 1-3
Existing and Proposed LOS and Configuration
US 40/Washington St Interchange
(SHEET 3 OF 7)

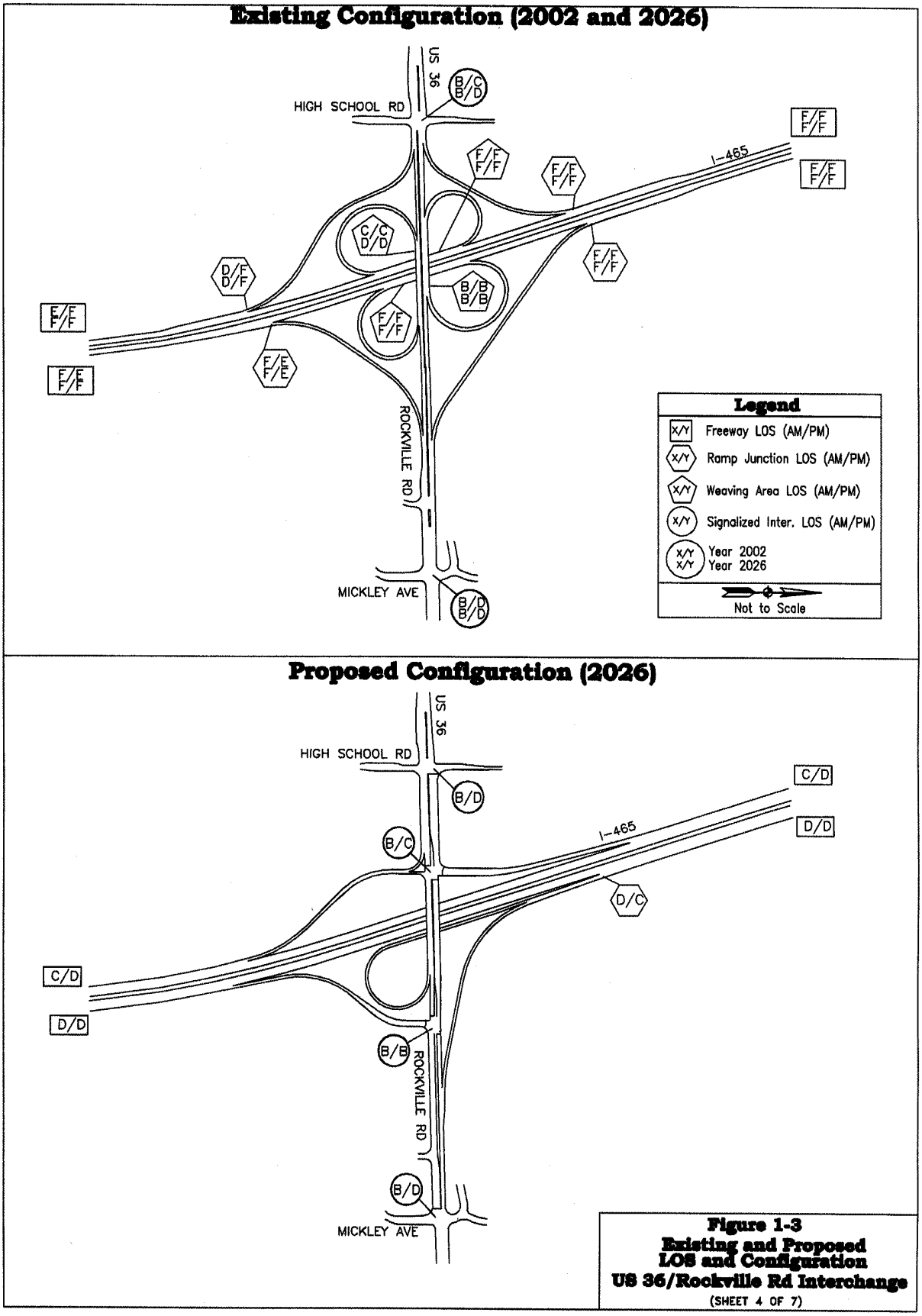
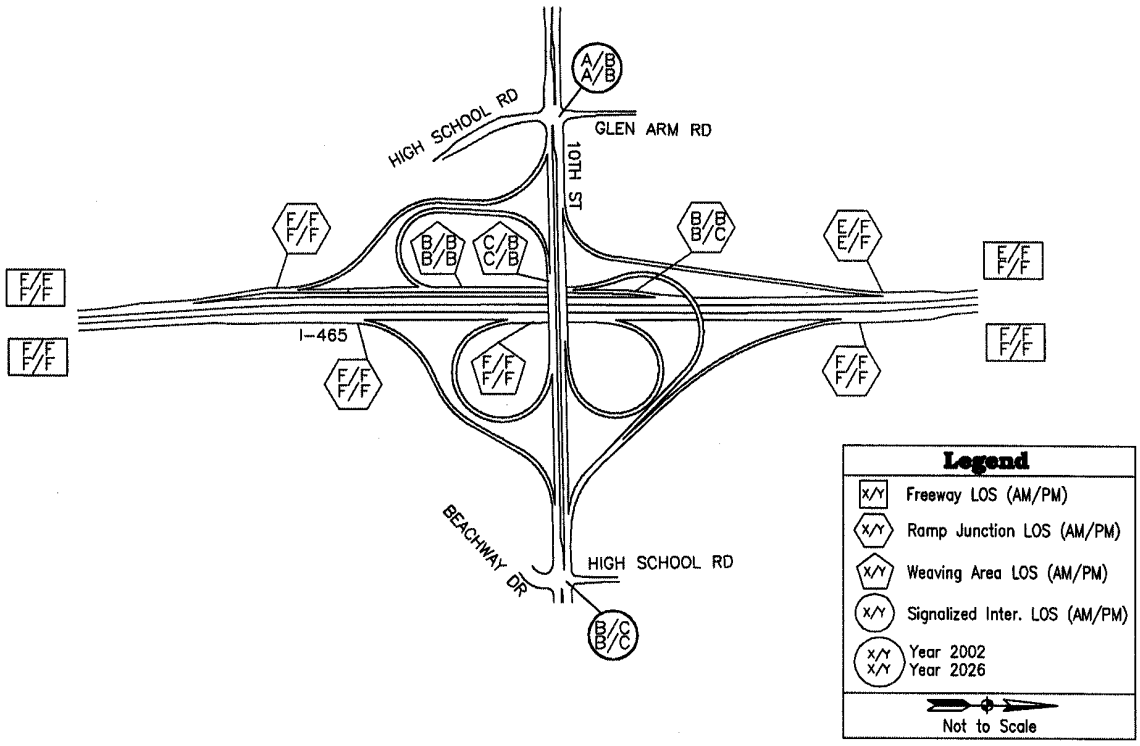


Figure 1-3
Existing and Proposed LOS and Configuration
US 36/Rockville Rd Interchange
(SHEET 4 OF 7)

Existing Configuration (2002 and 2026)



Proposed Configuration (2026)

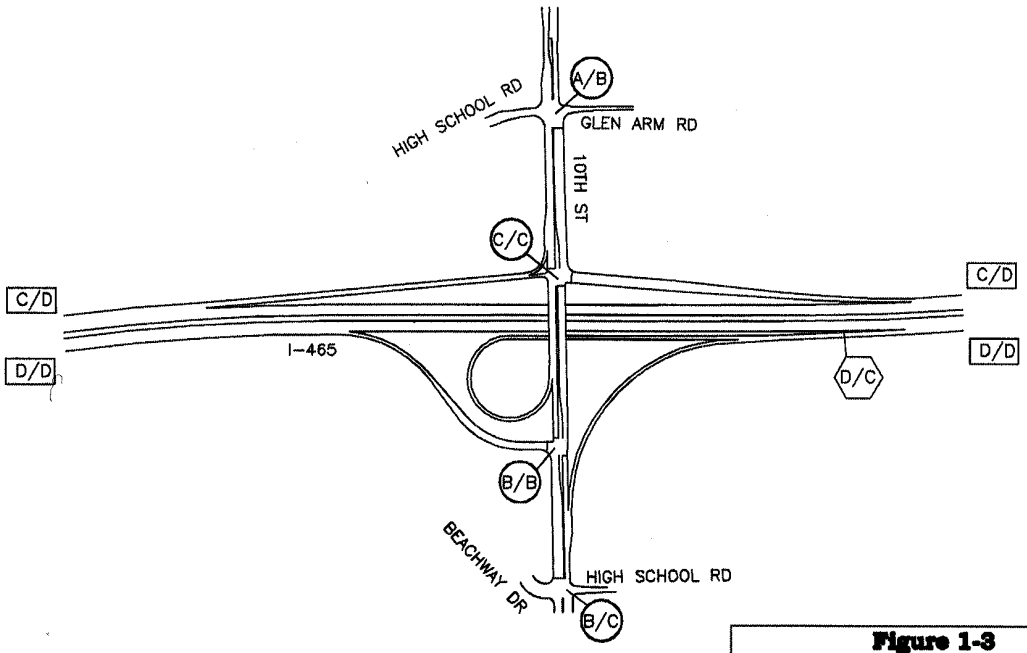


Figure 1-3
Existing and Proposed LOS and Configuration
10th Street Interchange
(SHEET 5 OF 7)

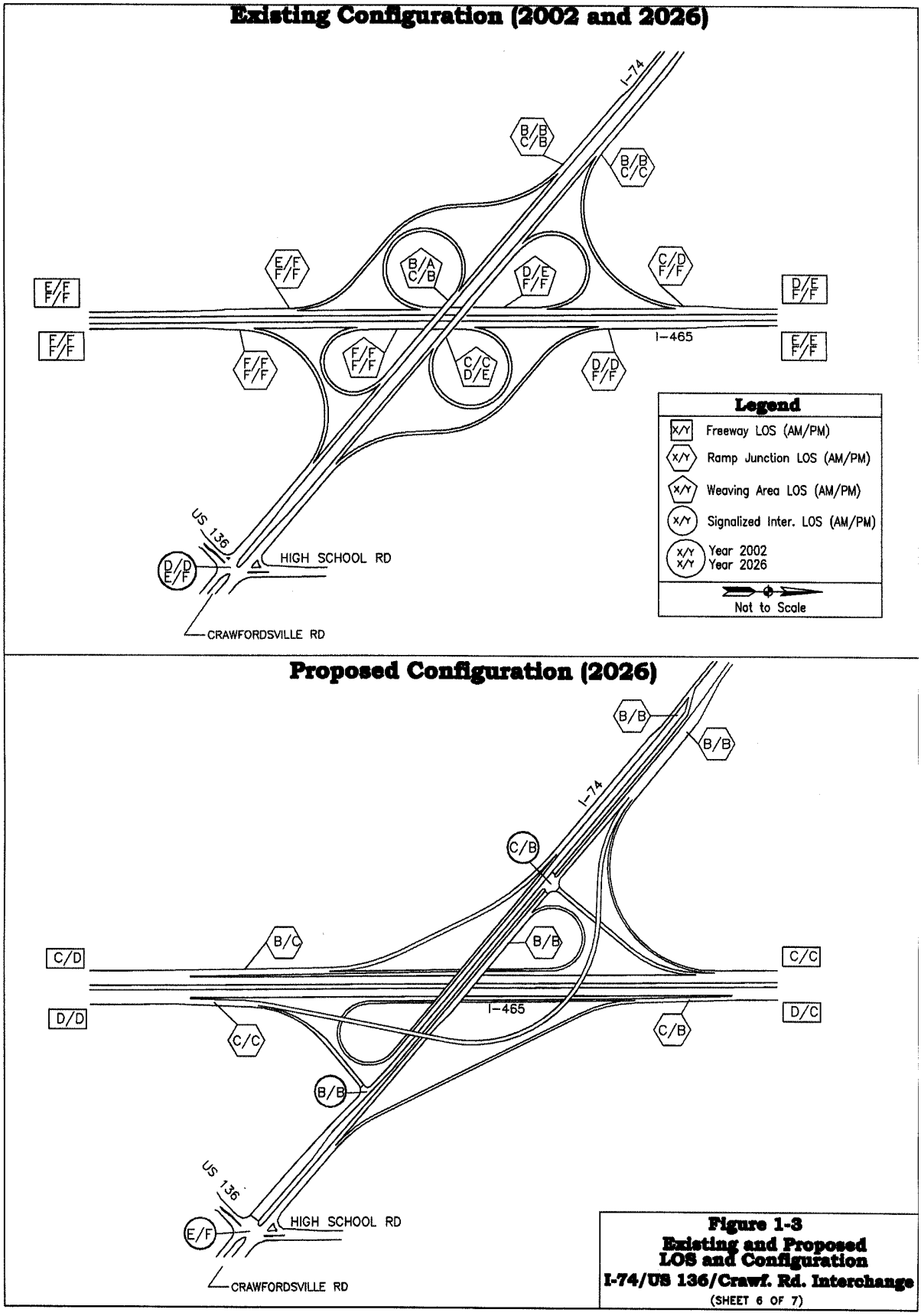
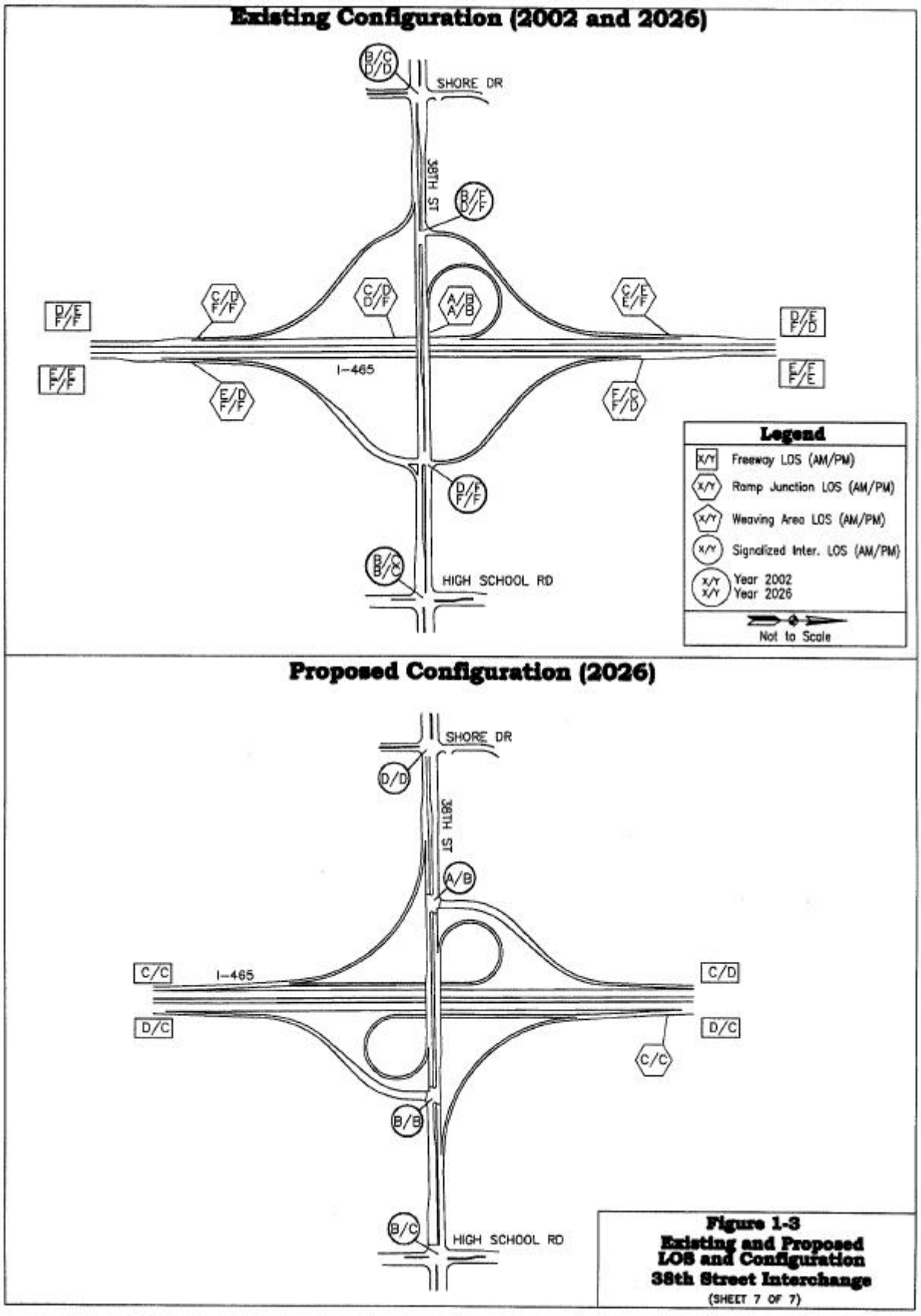


Figure 1-3
Existing and Proposed LOS and Configuration
I-74/US 136/Crawf. Rd. Interchange
(SHEET 6 OF 7)


Existing Configuration (2002 and 2026)
SHORE DR
38TH ST
I-465
HIGH SCHOOL RD
Legend
Freeway LOS (AM/PM)
Ramp Junction LOS (AM/PM)
Weaving Area LOS (AM/PM)
Signalized Inter. LOS (AM/PM)
Year 2002
Year 2026
Not to Scale
Proposed Configuration (2026)
SHORE DR
38TH ST
I-465
HIGH SCHOOL RD
Figure 1-3
Existing and Proposed
LOS and Configuration
38th Street Interchange
(SHEET 7 OF 7)

1.6 Geometric Deficiencies

The project is needed to improve geometric deficiencies along mainline I-465 and the associated interchanges within the project area. At numerous locations along the corridor, the proposed new construction will bring the roadway up to current design and safety standards, especially in the areas of: 1) inside and outside mainline and ramp shoulder widths; 2) interchange ramp acceleration, deceleration and taper lengths; and, 3) clear zone and guardrail/barrier requirements.

Three vertical curves within the project area do not satisfy the 70 mph design speed. All three curves are crest curves, and they are located at the I-465 overpasses of SR 67, the CSX rail line approximately 1600' south of US 40, and the CSX rail line approximately 1300' south of US 36. The proposed construction in these areas will satisfy a 70 mph design speed.

INDOT's Pavement Management Section indicated that the existing overlay is in fair to good condition, but is expected to deteriorate by the construction year (2005 or later). The base concrete layer is 34 to 41 years old. The concrete base has widespread distress, severely so at joints. Any improvements to capacity or to I-465's pavement are to be done at the same time to minimize inconvenience to travelers during construction.

2. PROJECT DESCRIPTION

The Indiana Department of Transportation (INDOT) plans to increase capacity of 11 miles of I-465 in Marion County, IN from south of SR 67 to south of 56th Street. Alternatives include: 1) doing nothing; 2) Transportation System Management Techniques (TSM); 3) providing for mass transit; 4) expanding certain areas to four lanes in each direction; 5) expanding certain areas to five lanes in each direction; 6) expanding certain areas to six lanes in each direction; 7) interchange modifications; and, 8) mixing elements of the above. The lane additions could be the addition of a full through lane or addition of lanes between two interchanges only, where a lane is added at an entrance, then dropped at the next exit. This is termed an "auxiliary" lane.

2.1 Existing Conditions

I-465 is a 53-mile circumferential beltway of the Indianapolis area. This segment of the west leg, approximately 11 miles of I-465 between south of the SR 67 interchange (Exit 8) to south of the 56th Street interchange (Exit 19), was built in the late 1950s and early 1960s on the fringe of the urban area. Development along the corridor occurred relatively quickly after I-465 opened.

Interstate 74 (west leg) travels over I-465 between the southern limit of this study and Exit 16 where it departs to the west. I-70 crosses I-465 in the south study area. I-465 now has three through-lanes in each direction, with the exception that four lanes are provided in each direction between SR 67 and I-70 and four lanes are provided in the southbound direction between US 40 and the Airport Expressway.

An overall lack of north-south local roads in the area with any degree of continuity results in I-465 having high traffic volumes. A study by Pflum, Klausmeier and Gehram Consultants, Inc., in 1999 forecast that 90 percent of the traffic that enters the study area exits I-465 before the end of the study area. As one of the first interstates constructed in Marion County its geometrics are less than desirable by today's standards. The roadway does not meet the current design standards for shoulder widths; interchange ramp acceleration, deceleration, and taper lengths; clear zone and barrier requirements; and vertical curves. In addition to this the base concrete layer of the roadway is 34 to 41 years old. It has widespread distress and would be replaced at the same time as the addition of lanes to minimize traveler disruption.

I-465 serves local and regional traffic needs for the Indianapolis area and Indianapolis International Airport. But most significantly, it is an interstate highway and so has national significance. Along the west leg under study, it serves to both collect and distribute long-distance national traffic as well as serving the Indianapolis region. When this segment of I-465 was completed in 1961/62, the roadway featured only two lanes in each direction, although the mainline bridges were built at that time to accommodate three lanes in each direction. The third travel lane was added in the median in 1966/67. The roadway has 12-foot lanes and was built to a design speed of 70 miles per hour. Access is at interchanges only (full access control). The maximum grade over the length of the roadway is three percent. The existing right-of-way is typically 200 feet but expands to 260 feet in certain areas. The posted speed limit is 55 miles per hour. The interchanges in the current study from south to north are: SR 67 (Kentucky Avenue), I-70, Airport Expressway, US 40 (Washington Street), US 36 (Rockville Road), 10th Street, I-74/US 136/Crawfordsville Road, and 38th Street.

The north project limit was set by considering that the 56th Street interchange would best be included in a separate study that incorporates the I-465/I-65 interchange. The 56th Street interchange will be included in a study with the I-465/I-65 interchange because any change in access at the 56th Street interchange will affect operations at the I-465/I-65 interchange. Currently this is a partial interchange and there are no ramps on the north side of 56th Street to or from the I-465/I-65 interchange.

2.2 Preferred Alternative

Tables 2-1 through 2-3 and Figures 2-1 and 2-2 compare existing conditions with the characteristics of the Preferred Alternative. See Figure 1-3 for the configurations of the existing and the proposed interchanges.

Table 2-1
Existing Interchange Characteristics

Location	Type	Additional Information
SR 67 (Kentucky Avenue)	Folded Diamond	Folded to the southeast (Railroad on northwest side)
I-70	Semi-Directional	Directional ramp from NB I-465 to WB I-70
Airport Expressway	Semi-Directional	Directional ramp from SB I-465 to EB Airport Expressway
US 40 (Washington Street)	Cloverleaf	
US 36 (Rockville Road)	Cloverleaf	
10th Street	Semi-Directional	Directional ramp from WB 10th St. to SB I-465; SB C/D[a]
I-74/US 136/Crawfordsville Road	Cloverleaf	
38th Street	Partial Cloverleaf	Loop in NW quadrant only (WB 38th St. to SB I-465)

[a] C/D means "collector/distributor road". These roads are designed to keep merge and diverge activity separate from the mainline flow. This means using a concrete safety barrier to hold C/D traffic apart from the mainline.
Source: INDOT

Table 2-2
Future Interchange Characteristics

Location	Type	Additional Information
SR 67 (Kentucky Avenue)	Folded Diamond	Folded to the southeast (Railroad on northwest side)
I-70	Semi-Directional	All directional except loop ramp from SB I-465 to EB I-70
Airport Expressway	Semi-Directional	Directional ramp from SB I-465 to EB Airport Expressway
US 40 (Washington Street)	Partial Cloverleaf	Loops in northwest and southeast quadrants
US 36 (Rockville Road)	Partial Cloverleaf	Loop in SE quadrant only (EB US 36 to NB I-465)
10th Street	Partial Cloverleaf	Loop in SE quadrant only (EB 10th St. to NB I-465)
I-74/US 136/Crawfordsville Road	Semi-Directional	Directional ramp from NB I-465 to WB I-74
38th Street	Partial Cloverleaf	Loops in northwest and southeast quadrants

Source: TCG and INDOT

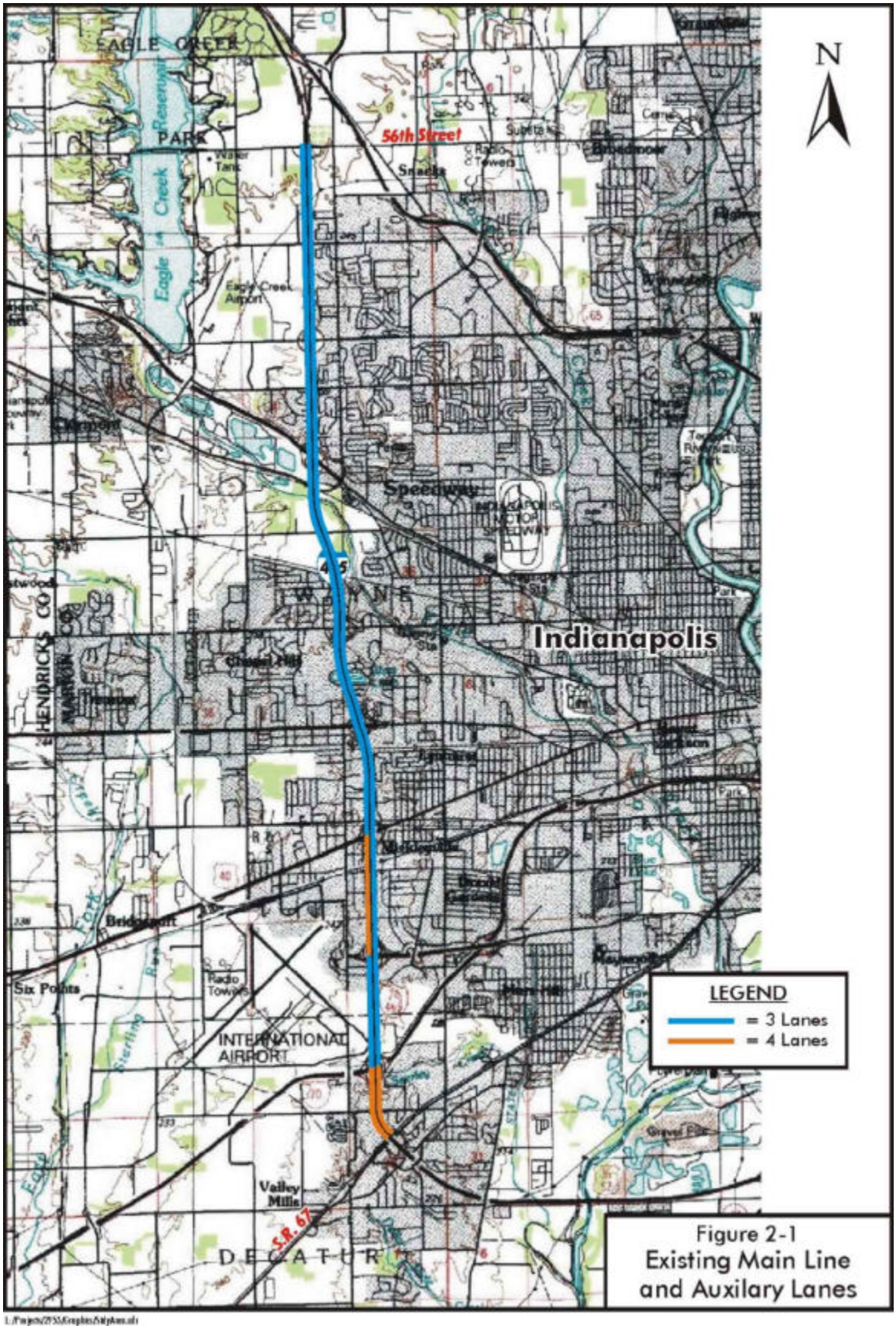


Figure 2-1
Existing Main Line and Auxilary Lanes

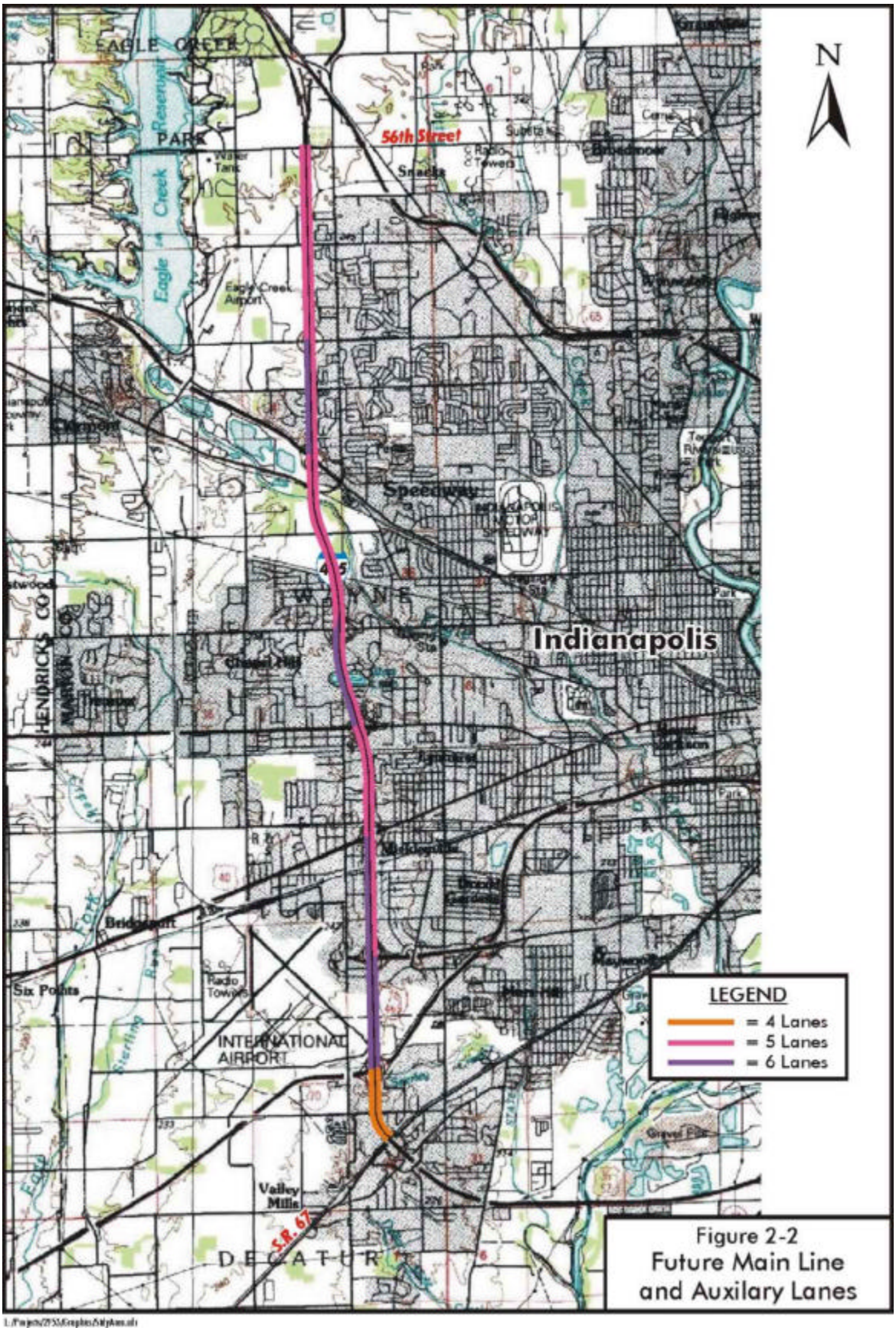


Figure 2-2
Future Main Line
and Auxilary Lanes

Table 2-3
Travel Lanes by Segment
(main line + auxiliary)

Location	Existing Lanes		Future Lanes	
	NB	SB	NB	SB
SR 67 to I-70	4	4	4[a]	4[b]
I-70 to Airport Expressway	3	3	6	6
Airport Expressway to US 40	3	4	5	6
US 40 to US 36	3	3	5	5
US 36 to 10th Street	3	3	5	6
10th Street to I-74	3	3	5	5
I-74 to 38th Street	3	3	5	6
38th Street to 56th Street	3	3	5	5

[a] In addition to these lanes there will be four C-D lanes on I-465 NB between SR 67 and I-70.
[b] In addition to these lanes there will be three C-D lanes on I-465 SB between SR 67 and I-70.
Source: INDOT and The Corradino Group

With the preferred alternative, the LOS on the mainline and auxiliary lanes would range from LOS B to LOS D in the AM and PM peak hours. The preferred alternative would meet INDOT and FHWA guidelines for urban areas, which call for a LOS D or better. (See Table 2-4 for the LOS in 2026 for the preferred alternative). The LOS at all of the ramp junctions and the weave areas of the interchanges will range from LOS A to LOS D with the preferred alternative. All of the interchange ramp junctions in weave areas will meet INDOT and FHWA LOS guidelines for the design year of 2026. See Figure 1-3 for the LOS of the interchange areas.

Table 2-4
Projected Mainline Capacity Analysis

Location	No. of Lanes SBL/NBL	Design Year (2026) LOS	
		Preferred Alternative	
	Future	AM Peak SB/NB	PM Peak SB/NB
SR 67 to I-70	4/4	B/B	C/B
I-70 to Airport Expressway	6/6	B/C	C/B
Airport Expressway to US 40	6/5	C/D	C/C
US 40 to US 36	5/5	C/D	D/D
US 36 to 10th Street	6/5	C/D	D/D
10th Street to I-74	5/5	C/D	D/D
I-74 to 38th Street	6/5	C/D	C/C
38th Street to 56th	5/5	C/D	D/C

The basic future typical section will be an urban interstate, with 12-foot lanes and a 26-foot paved median with a concrete barrier. Inside and outside shoulders would be 12 feet. The minimum right-of-way would be 200 feet in a few areas where enclosed drainage will be used to minimize impacts. Areas with typical open drainage would have 250 to 270 feet of right-of-way. Right-of-way needs will

expand in areas of cut and fill and would clearly be more expansive at interchange areas. Allowable grades would be from -3.00 percent to +3.00 percent. Full control of access will be exercised. There are currently 35 mainline, ramp, and overhead bridge structures along I-465. One pair is over Big Eagle Creek, 15 structures cross over railroad tracks and roads, and 18 road structures cross over I-465. The only access to I-465 will be via the eight interchanges from SR 67 to 38th Street.

3. ALTERNATIVES

Alternatives considered in this document include: 1) doing nothing; 2) Transportation System Management Techniques (TSM); 3) providing for mass transit; 4) expanding certain areas to four lanes in each direction; 5) expanding certain areas to five lanes in each direction; 6) expanding certain areas to six lanes in each direction; 7) interchange modifications; and, 8) mixing elements of the above. The lane additions could be the addition of a full through lane or addition of lanes between two interchanges only, where a lane is added at an entrance, then dropped at the next exit. This is termed an "auxiliary" lane. Use of collector /distributor (C/D) roads were also considered and recommended in some locations to keep merge, diverge, and weaving activity apart from the mainline flow.

Consistent with state and federal guidance, this environmental document addresses how the above alternatives were considered and the process that led to the Preferred Alternative.

3.1 No Action Alternative

The No Action Alternative{xe "No Action Alternative"} provides the basis for comparison with other alternatives. Normally the No Action Alternative includes only short-term maintenance and safety improvements.

The No Action Alternative{xe "No Action Alternative"} (and all subsequent alternatives) assumes a basic existing plus "committed" roadway network. Defining "committed" as those projects that have some construction funding identified in the current Transportation Improvement Program (TIP), there are no projects that would significantly affect or be affected by the proposed project. The Six Points interchange on I-70 west of the study area is now scheduled for construction beginning in 2003. There are plans to widen SR 67 from Thompson Road (west of the study area) to I-465. Preliminary engineering and land acquisition are listed in the TIP, thus far.

The No Action Alternative{xe "No Action Alternative"} would not provide any improvements to regional accessibility and would result in increased congestion.

The No Action Alternative would result in an increasingly overburdened transportation corridor with sections of the road operating at Level of Service F in the AM and PM peaks. The only section that would not operate at LOS F in the AM and the PM peak is the section between SR 67 and I-70 at the south end of the project. This section would operate at LOS D in the AM peak and at LOS E in the PM peak. There would be no improvements to safety/geometrics deficiencies. Selection of this alternative would leave Indianapolis and Marion County residents with an inadequate transportation facility that would become increasingly hazardous and congested. The No Action Alternative would not be consistent with the *Indianapolis Regional Transportation Plan for 2025*, nor INDOT's *Long Range Plan*.

3.2 Transportation System Management (TSM)

TSM techniques include changing signalization, widening lanes, providing drainage, adding sidewalks and bike lanes, minor lane additions and geometric improvements, and other relatively low cost changes that facilitate the flow of traffic. TSM techniques emphasize maximum use of existing facilities.

TSM techniques have little applicability to mainline freeways. An earlier round of lane additions within the median occurred in 1967. I-465 is a full control of access roadway that prohibits pedestrians and

bicycles. Since pedestrians and bicycles are prohibited, adding sidewalks and bike lanes will not help capacity. Since there are no signals, changes in signalization will not help. Lane widths and drainage are not problems and improvements to them would not improve capacity. This limits TSM treatments to ramp termini at crossroads. Except in those rare instances when ramps back up onto the mainline, TSM has no effect on mainline capacity and therefore does not address the fundamental need for the project. TSM treatments of ramp terminals are an important consideration in the development of any ramp reconstruction as the intent of the proposed project is to improve traffic flow both on the mainline, ramps, and cross roads.

3.3 Mass Transit

Several bus routes cross I-465, but no routes travel along I-465 in the project area. The routes that cross I-465 are: Route 8, which crosses I-465 at US 40; Route 9, which crosses I-465 at the Airport Expressway; Route 10, which crosses I-465 at 10th Street; Route 15, which crosses I-465 at 38th Street and 46th Street; and, Route 40, which crosses I-465 at US 36. Mass transit options would not resolve safety and geometric deficiencies along the corridor, nor add mainline capacity. There are no plans to add significant transit capacity in the corridor. There has been some discussion of radial light rail service to the airport from downtown, crossing I-465. Planning for I-465 will take into account possible corridors and not foreclose any design options for light rail corridors.

3.4 Expanding I-465 to Four, Five, or Six Lanes in Each Direction

Capacity analysis has determined that providing four lanes in each direction on I-465 would provide an inadequate Level of Service in the corridor, LOS E in the south section of the corridor from SR 67 to US 40 and F north to 38th Street. Providing five lanes in each direction would provide the minimum allowed LOS in the corridor, LOS D. Providing six lanes in each direction would provide a LOS of C through the length of the corridor.

The number of lanes noted above and the associated LOS were refined in the course of analysis. Refinement consisted primarily of determining where auxiliary lanes could best serve traffic and minimize impacts. If auxiliary lanes are used bridge costs may be reduced by not carrying the extra lane over or under cross roads. In addition, merge lengths are increased, improving traffic flow. With auxiliary lanes, the driver has the added distance to the next exit for decision-making and a merge instead of coming to the end of the entrance ramp and having to merge. Also, some drivers now travel over I-465 for only one interchange. They would never leave the auxiliary lane and would not merge onto the mainline.

INDOT's decision to provide four through lanes in each direction with auxiliary lanes running from the entrance ramp of one interchange to the exit ramp of the adjacent downstream interchange was coordinated with the FHWA during the development of the Engineer's Report. Providing five through lanes in each direction with standard entrance and exit ramps would have a much more severe impact on the neighboring properties for this built-up corridor. With the spacing of the interchanges along the west leg of I-465 (many of the interchanges being spaced only 1 mile apart), and with many of the ramps being dual lane, a continuous auxiliary lane between interchanges is appropriate. In many cases, without auxiliary lanes, the entrance taper of one ramp would overlap the exit taper of the ramp at the downstream interchange.

The continuous auxiliary lane configuration is common for urban corridors such as I-465 with high

commuter traffic and high driver familiarity. Signing and special lane striping for the auxiliary lanes could be utilized to minimize any potential driver confusion. Also, the uniform application of the auxiliary lane concept throughout the corridor will help minimize confusion. Motorists who incorrectly remain in an auxiliary lane and find themselves on an exit ramp of an interchange can safely travel through the interchange and work their way back to I-465 via the local network.

The total number of mainline and auxiliary lanes in each direction is shown in Table 2-3 and in Figure 2-2.

3.5 Interchange Modifications

All interchanges were carefully analyzed in terms of their current operation, projected traffic, up-to-date design standards, environmental constraints (natural and human environment), driver expectation, traffic flow on cross roads, and constructability. See Figure 1-3 for the configurations of the existing and proposed interchanges.

3.5.1 SR 67

This intersection is "flopped" today, meaning all the ramps are on one side. This is due to the presence of an active railroad that parallels the northwest side of SR 67. It was determined that the railroad will remain active. Rail traffic is expected to continue at one train a day. In other words, the rail line will not be abandoned, and the new interchange design must accommodate it. A number of configurations examined moving the railroad to allow room for an interchange with ramps on both sides of SR 67. Shifting the railroad would have required costly INDOT purchase of right-of-way for the rail provider, and would have affected one rail customer. The introduced curve in the rail tracks would have led to long-term maintenance costs that the rail provider would have sought from INDOT through a maintenance agreement. Finally, the configuration would have required reconstruction of Hanna Avenue. Hanna Avenue passes over I-465 today, but with a shifted rail line, I-465 would have to be built over a depressed Hanna Avenue.

A second alternative considered shifting SR 67 away from the railroad, rather than shifting the railroad. Such a shift would have resulted in substantial impacts on the surrounding land uses, especially existing residential development. There were also substantial geometric problems with the resulting curvature to be introduced into SR 67.

With movement of the railroad and SR 67 infeasible, design analysis focused on how to enhance the basic flopped configuration. One alternative was to provide a "flyover" ramp to serve the heavy eastbound to northbound movement through the interchange. Unfortunately, planned development in the southwest quadrant of the interchange has reached a sufficiently advanced stage that the land needed for the flyover ramp is already committed.

The result is that the basic configuration of the interchange as it is today will be enhanced. Changes are summarized by movement.

Mainline - Northbound to eastbound - similar to today, improvements to ramp terminus
Northbound to westbound – similar to today, improvements to ramp terminus
Southbound to eastbound – similar to today, improvements to ramp terminus
Southbound to westbound – similar to today, improvements to ramp terminus

SR 67 - Eastbound to northbound – free-flow loop on-ramp
Eastbound to southbound – similar to today
Westbound to northbound – similar to today with improved turn lanes feeding ramp
Westbound to southbound - similar to today with improved turn lanes feeding ramp

Additional engineering considerations at this location are merging the northbound ramp traffic coming from east- and westbound SR 67 and weaving it with the northbound exit ramp to I-70. This would be accomplished with a collector-distributor (C-D) road.

3.5.2 I-70

At I-70 the north- and southbound exits from I-465 would be similar to those of today. A loop ramp would continue to serve the southbound to eastbound movement. This movement has little traffic demand, as most drivers complete the I-465 southbound to I-70 eastbound movement via the Airport Expressway, where there is today and will be in the future, a directional ramp serving this movement. For movements from eastbound I-70 to northbound I-465 and westbound I-70 to southbound I-465 new directional ramps will be provided where there are presently loop ramps. Provision of directional ramps was considered for all movements, as this is an interstate to interstate connection. However, the typical four-stack design of such interchanges was not desirable due to the proximity of the airport runways and consequent height restrictions. A four-stack interchange is a fully directional interchange with no loop ramps. Instead, all typical loop ramps found in a full cloverleaf interchange are replaced by directional ramps that, many times, cross the junction of the main lines of the two intersecting roads. This can create a configuration where four bridges are stacked on top of each other.

3.5.3 Airport Expressway

This interchange is not expected to experience as much growth in traffic as other interchanges due to the planned development of a new Midfield airport terminal, to be open in 2007, and the development of the new Six Points Interchange, to be open around the end of 2004, west of I-465 on I-70 to serve as the principal entry point for that new terminal. Of concern in the reconstruction of this interchange is avoiding impacts to the commercial development on the east side of I-465. Loop ramps will continue to serve northbound to westbound, westbound to southbound, and eastbound to northbound movements. A new two-lane directional ramp will replace the existing one-lane directional ramp to serve southbound to eastbound movements. This movement is the primary way that drivers on southbound I-465 go to eastbound I-70.

3.5.4 US 40 / Washington Street

The principal design goal at this location was to eliminate the weave conflicts inherent in the full cloverleaf design that is now present. This will be accomplished by eliminating the northbound to westbound and southbound to eastbound loop ramps. Single exit ramps from I-465 would take their place. Turns to both east and west would be made from these ramp termini at signalized intersections with US 40. The on-ramps to I-465 would be constructed as "collector-distributor" roads. These roads are designed to keep merge and diverge activity separate from the mainline flow. This means using a concrete safety barrier to hold C/D traffic apart from the mainline. So, in this case, for example, the traffic on the eastbound to northbound loop ramp will merge with the westbound to northbound traffic on a C/D roadway that parallels the mainline. The C/D road then merges with the mainline. This minimizes conflicts at the higher mainline speeds.

This design improves the intersection operation at High School Road by extending the distance between the southbound off-ramp and the intersection. Weave movements on I-465 and on US 40 that currently cause operational problems will be eliminated.

3.5.5 US 36 / Rockville Road

The improvements at US 36, like those at US 40, were directed at eliminating problems associated with traditional cloverleaf design. The layout of the proposed improvements can be described as a diamond interchange with one loop. A diamond interchange is one where the exit ramp termini normally line up with the on-ramp entrances, often at signalized intersections (in urban areas). This pattern would hold on the west side of I-465 at US 36. Due to the expected high demand for the movement from eastbound to northbound, a loop ramp would continue to serve this movement. The loop ramp would merge with the westbound to northbound ramp as a C/D road, which would then merge with the mainline.

This design improves the intersection operation at High School Road by extending the distance between the southbound off-ramp and the intersection. The same is true of the northbound off-ramp and Mickley Avenue. Weave movements on I-465 and on US 36 that currently cause operational problems will be eliminated.

3.5.6 10th Street

Changes at this interchange are summarized as follows:

- North to east – signalized ramp terminus, compared to free flow merge onto 10th Street.
- North to west – signalized ramp terminus, compared to loop ramp in northeast quadrant.
- South to east – signalized ramp terminus, compared to loop ramp in southwest quadrant.
- South to west – signalized ramp terminus, compared to free flow merge onto 10th Street.
- East to north – modified loop ramp, joining with westbound to northbound ramp to form a C/D road before merging with I-465.
- East to south – right turn at signalized intersection on 10th Street, compared to free-flow ramp.
- West to north – modified free-flow ramp, joining with eastbound to northbound loop ramp to form a C/D road before merging with I-465.
- West to south – left turn from signalized intersection on 10th Street, compared to fully directional ramp.

As at US 40 and US 36, the proposed design would improve the operation of adjacent intersections east and west on 10th Street.

3.5.7 I-74

The most notable change to this interchange is that a signalized intersection would be introduced west of I-465. I-74 freeway traffic destined for I-465 would be segregated well in advance of the intersection and would continue to flow freely, without stopping. Presently the first intersection (as one approaches from the west) is east of I-465. The site distance at the existing intersection is poor as one

crests over the bridge carrying I-74 over I-465. An earlier intersection will slow traffic down before it reaches High School Road.

Today this interchange is a full cloverleaf. With reconstruction two loop ramps would remain to serve the two lightest movements, west to south and east to north. In each case these loop ramps would merge with the east-to-south and west-to-north ramps to form C/D roads before merging with the mainline of I-465. The heavy movements, north to west and east to south would be served by two-lane ramps. The north to west ramp would be directional.

3.5.8 38th Street

Today this interchange is a partial cloverleaf with a single loop ramp serving the westbound to southbound movement. The proposed design calls for adding a second loop in the southeast quadrant serving eastbound to northbound travel. The off-ramp termini would be pulled in tighter to I-465 so that the spacing to adjacent intersections is increased. Traffic signals will be added at the southbound and northbound ramp ends, thus eliminating weaving for those wishing to make left turns at adjacent intersections.

3.6 Preferred Alternative

Together the interchange and mainline/auxiliary lane additions noted above constitute the Preferred Alternative.

3.7 Schedule and Cost

The schedule for the project anticipates construction starting no earlier than 2005. The preliminary right-of-way and construction cost estimate is $425 million in 2002 dollars.

4. DESCRIPTION OF PROJECT AREA AND IMPACTS

This chapter describes the setting of the project and the environmental consequences{xe "environmental impacts"} of the Preferred Alternative. The information presented here follows the guidelines of the Federal Highway Administration's *Technical Advisory 6640.8A* and INDOT's *Procedural Manual for Preparing Environmental Studies*.

4.1 Land Use Impacts

Existing land use along the corridor is mixed. There is currently institutional (Airport), residential, commercial, industrial, and parkland along the corridor.

4.2 Farmland Protection Policy Act (FPPA) and Impacts on Agricultural Lands

There are no prime agricultural soils in the study area. As is required by the Farmland Protection Policy Act, the NRCS has been contacted and a Form AD-1006 (which evaluates farmland impacts) has been completed (Appendix A). Since this project received a total point value of less than 160, it will receive no further consideration for farmland protection. No alternatives other than those already discussed in this document will be considered without a re-evaluation of the project's potential impacts upon farmland. The project will not have a significant impact to farmland. The NRCS indicated that there is no prime farmland or farmland of statewide importance affected by the project (see letter and questionnaire dated January 7, 2002 in Appendix A).

4.3 Social Impacts

4.3.1 Public Institutions – Recreational, Educational, Health, Religious

Krannert Park is located on the west side of I-465 between US 40 and US 36. Facilities at the park include an indoor pool, outdoor pool, weight room, tennis courts, ball fields, shelters, pond, children's playground, volleyball courts, family center, and a conference room. None of the facilities at the park will be affected by the project. The future right-of-way in this area will not change and no right-of-way will be needed from the park.

A private ballfield and part of a pond at the Plumbers and Steamfitters Union Local 440 will likely be taken for I-70/I-465 interchange ramps.

Ben Davis Junior High School is located adjacent to the west side of I-465 between US 40 and US 36. The school has an enrollment of approximately 1,100. The track for the school is about 30 feet from the existing right-of-way fence. A backstop for throwing discus and shot-put is about five feet away from the right-of-way fence. The future right-of-way in this area will not change and the discus/shot-put backstop and the track will not be affected.

The Rehabilitation Hospital of Indiana is located on the west side of I-465 north of the 38th Street interchange. A small piece of frontage may be taken, but no structures would be directly affected by the project.

Two churches/religious facilities are located along I-465. The Lakeview Christian Center is located near the northeast quadrant of the I-465 and US 36 interchange. The ramps for the interchange

would be reconstructed and would be located further from the church. The Church of Christ is located on the west side of I-465 south of the 10th Street interchange. No right-of-way acquisition is expected from either of the facilities.

4.3.2 Considerations Related to Pedestrians and Bicyclists

Because I-465 is a full control of access facility no pedestrian or bicycle facilities will be provided along the route.

The State of Indiana Department of Natural Resources has identified a number of on-road bike routes in the state and publishes maps showing routes. None of these are located in the project area.

Bicycle routes that cross I-465 will be accommodated. No current Marion County Greenway Trails cross I-465. However, proposed Greenway Trails would cross I-465 at Big Eagle Creek and at the former B & O rail line that is a little south of Big Eagle Creek. Primary bike routes cross I-465 at 34th Street, 10th Street, Minnesota Street, and Hanna Avenue. Secondary bike routes cross I-465 at 46th Street, 21st Street, and Mooresville Road. Primary bicycle routes will be accommodated with bike lanes on structures. Secondary routes will be accommodated by sidewalks or width for bike lanes and sidewalks.

4.3.3 Emergency Services

Improvements to the roadway will decrease travel times for emergency vehicles{xe "emergency vehicles"}, especially the Wayne Township Fire Department station located on the west of I-465 between US 36 and 10th Street.

4.4 Relocation and Right-of-Way Impacts

4.4.1 Relocation Impacts

Fourteen single family residential relocations are anticipated due to this project. Adequate comparable, decent, safe, and sanitary residential property is available in the local market to relocate households satisfactorily. No significant negative impacts are anticipated on any neighborhood, or public facilities.

The relocation services required by this project are neither large nor complex. Therefore, specific coordination with local public officials is not necessary. The acquisition and relocation program required by this project will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, Title IV of the Civil Rights Act of 1968, and 49 CFR 24. No person displaced by this project would be required to move from a displacement dwelling unless comparable replacement housing{xe "housing"} is available to that person. Required actions would be taken to ensure fair and equitable treatment of persons displaced as a result of this project up to and including providing replacement housing of last resort as defined in 49 CFR Part 24.404. Relocation resources for this project are available to all relocatees without discrimination.

4.4.2 Right-of-Way Impacts

Acquisition of 86.3 acres of right-of-way is anticipated for this project. About 5.0 acres of multi-family residential, 26.1 acres of single-family residential, 2.0 acres of commercial, 12.7 acres of industrial, and 40.5 acres of institutional land (mainly airport property) will be needed for the project.

4.5 Environmental Justice

This project has been developed in compliance with Executive Order 12898, *Federal Actions*{xe "*Federal Actions*"} *to Address Environmental Justice*{xe "*Environmental Justice*"} *in Minority Populations and Low-Income Populations*, which is designed to ensure that low-income and minority populations do not bear a disproportionate burden of impacts from federally-sponsored projects. It is FHWA's longstanding policy to actively ensure non-discrimination in federally funded activities. Similarly, the Indiana Department of Transportation is committed to prevent discriminatory effects of its projects by actively administering its programs, policies and activities to ensure that social impacts to communities and people are recognized early and continually throughout the transportation decision-making process.

There are 13 census tracts within the study area. All but two had a poverty rate below the Marion County average of 12.1 percent. None had a poverty rate higher than 14.1 percent. The study area as a whole has a poverty rate of 7.6 percent, which is 4.5 percent lower than the county average (Table 4-1).

Table 4-1
Poverty Rate Data (1989)

Area	Total population	Below poverty	% Below poverty
Marion Co.	780,649	94,131	12.1%
Tract			
3101.09	7,209	237	3.3%
3103.05	3,197	177	5.5%
3401.06	4,874	209	4.3%
3401.07	3,793	170	4.5%
3401.08	3,072	235	7.6%
3409	7,185	400	5.6%
3419.01	5,490	772	14.1%
3419.02	3,285	69	2.1%
3421.01	3,512	333	9.5%
3421.02	0	0	0.0%
3422	5,951	815	13.7%
3701	2,454	265	10.8%
3702.01	4,976	479	9.6%

Study Area	54,998	4,161	7.6%

Source: US Census Bureau

All but three of the 13 census tracts in the study area have a minority population that is below the Marion County average of 29.5 percent. The study area as a whole has a minority population of 24.5 percent, which is five percent lower than the county average (Table 4-2).

Table 4-2
Minority Population Data (2000)

Area	Total population	Total one race	White	%	Black	%	American Indian and Alaska Native	%	Asian	%	Native Hawaiian and Other Pacific Islander	%	Some other race	%	Two or more races	%	Hispanic or Latino (of any race)	%	Non-White or two or more races	%
Marion Co.	860,454	846,335	606,502	70.5%	207,964	24.2%	2,181	0.3%	12,325	1.4%	365	0.04%	16,998	2.0%	14,119	1.6%	33,290	3.9%	253,952	29.5%
Tract																				
3101.09	6,233	6,100	4,487	72.0%	1,276	20.5%	14	0.2%	238	3.8%	3	0.05%	82	1.3%	133	2.1%	170	2.7%	1,746	28.0%
3103.05	5,239	5,075	1,959	37.4%	2,568	49.0%	10	0.2%	141	2.7%	3	0.06%	394	7.5%	164	3.1%	695	13.3%	3,280	62.6%
3401.06	7,197	7,050	5,934	82.5%	855	11.9%	14	0.2%	157	2.2%	8	0.11%	82	1.1%	147	2.0%	166	2.3%	1,263	17.5%
3401.07	5,425	5,313	3,852	71.0%	1,139	21.0%	13	0.2%	198	3.6%	5	0.09%	106	2.0%	112	2.1%	209	3.9%	1,573	29.0%
3401.08	3,823	3,680	1,580	41.3%	1,342	35.1%	19	0.5%	73	1.9%	3	0.08%	663	17.3%	143	3.7%	1,130	29.6%	2,243	58.7%
3409	9,287	9,058	7,557	81.4%	1,008	10.9%	17	0.2%	342	3.7%	1	0.01%	133	1.4%	229	2.5%	232	2.5%	1,730	18.6%
3419.01	6,945	6,795	4,589	66.1%	1,614	23.2%	28	0.4%	216	3.1%	6	0.09%	342	4.9%	150	2.2%	574	8.3%	2,356	33.9%
3419.02	3,678	3,649	3,295	89.6%	203	5.5%	3	0.1%	78	2.1%	2	0.05%	68	1.8%	29	0.8%	94	2.6%	383	10.4%
3421.01	4,066	3,977	3,469	85.3%	319	7.8%	18	0.4%	81	2.0%	4	0.10%	86	2.1%	89	2.2%	157	3.9%	597	14.7%
3421.02	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.00%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
3422	5,430	5,370	4,831	89.0%	416	7.7%	19	0.3%	27	0.5%	3	0.06%	74	1.4%	60	1.1%	131	2.4%	599	11.0%
3701	3,548	3,498	3,412	96.2%	43	1.2%	22	0.6%	2	0.1%	0	0.00%	19	0.5%	50	1.4%	60	1.7%	136	3.8%
3702.01	4,795	4,747	4,608	96.1%	72	1.5%	9	0.2%	32	0.7%	0	0.00%	26	0.5%	48	1.0%	67	1.4%	187	3.9%
Study Area	65,666	64,312	49,573	75.5%	10,855	16.5%	186	0.3%	1,585	2.4%	38	0.06%	2,075	3.2%	1,354	2.1%	3,685	5.6%	16,093	24.5%

Source: US Census Bureau

A public meeting was held at Ben Davis Junior High School on March 14, 2002. The meeting was open to the general public and was attended by approximately 200 people. One of the purposes of the meeting was to identify and include all affected individuals, to provide meaningful access to the public concerning the human health and environmental impacts, and to solicit input from the affected minorities and low-income populations. No concern of a disproportionate burden of impacts on low-income or minority populations was cited by the general public at the public meeting.

No disproportionately high and adverse human health or environmental effects on minority and low-income populations are anticipated with this project because the study area has fewer minority and low-income populations than the county average. In addition, no disproportionate burden of impacts was identified by the public at the public meeting. Furthermore, the project will have beneficial effects on residences in the study area by reducing air pollution and congestion. Impacts from the project will be no more adverse or higher in areas with minority and low-income populations than in other areas. Therefore, it is concluded that disproportionately high and adverse effects are not to be borne by a minority population and a low-income population, nor will the effects be appreciably more severe or greater in magnitude than the adverse effects that will be suffered by non-minority and non low-income populations.

4.6 Economic Impacts

Some strips of property from commercial enterprises will be taken for right-of-way; however, no commercial businesses or industries would be taken. About 10 percent of a pad ready site, which appears to have been abandoned for several years, a small strip of land from a heavy equipment rental business, some land used for storage and part of a railroad spur at the Indy Railway Service Corp., and some long-term parking at the Indianapolis International Airport would likely be taken for the project.

The project will result in minor losses of property tax revenues when strips of right-of-way are purchased. Loss of property taxes has not surfaced as a concern by local officials.

4.7 Joint Development

No joint use development opportunities have been identified.

4.8 Air Quality Impacts

The study area is in attainment for the following air quality criteria pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead. For ozone, the metropolitan area has been designated by the US EPA as a maintenance area. The state has submitted to EPA all required State Implementation Plan (SIP) revisions, and federal program sanctions are not in effect.

The project is included in the *Indianapolis Regional Transportation Improvement Program* (TIP) for 2002 to 2004. The *TIP* and the *Update of the Indianapolis Regional Transportation Plan for 2025* were determined to be in conformity with the requirements of the 1990 Clean Air Act, as amended, (per 40 CFR 51 & 93) by the Federal Highway Administration. The project's design concept and scope is not significantly different from that used in the *Transportation Plan* and *TIP* conformity analysis. Therefore, this project conforms to the transportation-related requirements of the 1990 Clean Air Act.

The project will have a positive effect on air quality. It will decrease congestion and idle time. The result will be an overall higher travel speed. Hydrocarbon emissions decrease as speed increases up to 55 mph, and thus are reduced when congestion is reduced. Emission of oxides of nitrogen are minimized in the speed range between 20 and 35 mph. Carbon monoxide emissions decrease with speed up to 55 mph. Smooth flow and minimal idling are best for minimizing air quality emissions. Therefore, the overall effect of higher speeds and smoother flow is reduced pollutants. The biggest factors will be: 1) fewer slow speed operations; 2) less idle time, and 3) fewer speed changes. Emission factors increase dramatically at low speeds and at idle. When vehicular transportation capacity meets or exceeds demand, vehicles will queue for shorter periods and undergo fewer speed changes.

Without the project, the predicted carbon monoxide (CO) levels would exceed the Environmental Protection Agency's (EPA) standards. With the project, the CO levels would meet EPA's standards. This is confirmed by use of computer software that estimates concentrations of CO at sensitive receptors near roadways. Three receptors representing existing homes were modeled along I-465: west of US 36, between US 36 and 10th Street, and east of 10th Street. In each case values at the first receptor showed the highest CO values and are shown in Table 4-3 (all values are in parts per million - ppm).

Table 4-3
Existing and Predicted Carbon Monoxide Levels

	One-Hour Values (ppm)				Eight-Hour Values (ppm)	
Condition	CAL3QHC Model	Ambient*	Total	Standard	Total**	Standard
2002	8.5	4.8	13.3	35	6.4	9
2010 No-Build	26.8	4.8	31.6	35	15.2	9
2010 Build	6.4	4.8	11.2	35	5.4	9
2026 No-Build	49.8	4.8	54.6	35	26.2	9
2026 Build	7.4	4.8	12.2	35	5.9	9

*The ambient level is a maximum one-hour level obtained from the Indiana Department of Environmental Management's Air Quality Subsystem Quicklook Report for 50 North Illinois, Indianapolis (1999), and may not be the appropriate background level to use for this area. However, no other data are available.
**The eight-hour value is the one-hour value x a meteorological persistency factor of 0.6 and a traffic persistency factor of 0.8.

The MOBILE5A and CAL3QHC computer models were used to generate the results for this analysis. Worst case conditions were modeled, using existing (2002) and projected future (2010 and 2026) traffic volumes and traffic speeds reflective of the anticipated level of traffic service, with and without the project. Future conditions without the project are expected to at a level of service of E/F, with slow to stopped traffic. The result is that CO concentrations would be much worse under no-build conditions and would fall below the one and eight hour standards set by the Environmental Protection Agency (EPA). The build project conditions would be well within the one-hour and eight-hour standards for the year of opening (2010) and the design year (2026).

During construction, air pollution will be created by construction equipment. This will be of limited duration and will cease upon completion of the project.

The Indiana Department of Environmental Management offered comments with respect to air quality through the early coordination process. These are contained in their letter dated January 25, 2002 in Appendix A. They relate to disposal options such as removal, mulching, and burial instead of burning; efforts to minimize fugitive dust emissions; ensuring asphalt paving plants are permitted and operate properly; and, review of structure demolition with respect to asbestos and lead-based paint.

4.9 Noise Impacts

The project is not expected to bring noticeably higher noise levels to most locations along the corridor. The project will not result in any areas substantially exceeding the existing noise level. Substantially exceeding means when predicted traffic noise levels exceed existing noise levels by 15 dBA or more. However, noise levels in many residential locations already approach or exceed established criteria. As the project would expand roadway capacity and shift some traffic closer to sensitive receptors, some noise level increases are likely, and noise mitigation must be considered under federal regulations (23 CFR 772). Potential noise mitigation could include noise barriers/walls or berms.

A noise report is on file at INDOT. A final noise study will be performed during final design. Noise analysis is sensitive to detailed geometry that is only available during final design. Analysis performed for this Environmental Assessment is for planning purposes to understand where noise barriers will be likely reasonable and feasible. Noise barrier implementation will also be subject to a positive response from the public and final design considerations.

Established noise level criteria are used in considering the potential for noise mitigation. Usually the concern is for residential areas, where the applicable criterion is 66 dBA during the loudest hour. This criterion is supplemented by two other primary considerations, reasonableness and feasibility. Feasibility means that it is structurally and acoustically possible to attenuate traffic noise occurring at a receiver by at least 5 dBA. Reasonableness means that INDOT believes abatement of traffic noise impacts is prudent based on consideration of all the following factors:

- The number of benefited receivers, those for whom the mitigation will benefit by at least 5 dBA Leq(h) at the noisiest hour conditions. This number is not necessarily the number of receivers impacted.
- The cost of abatement on a benefited receiver basis and on a project level basis. The Indiana Department of Transportation has set the acceptable cost per benefited receiver range as $20,000 - $30,000. This cost should be arrived at by applying a square footage cost basis on the square footage of the noise barrier. A reasonable square footage cost basis will be determined by the Indiana Department of Transportation.
- The severity of existing and future traffic noise levels. The absolute level and the increase of the future noise are two aspects with which to assess the severity of the noise impacts.
- The timing of development near the project. The state considers it appropriate to give more consideration for development that occurs before initial highway construction.
- The views of noise impacted residents. Potential negative impacts of noise barriers include unsightliness, shortened daylight, poor air circulation, degradation by weather, reduced safety, vandalism, and restriction of access for emergency vehicles.

For planning purposes FHWA's Transportation Noise Model (TNM1) was used to determine the distance at which future noise levels would approach or exceed established noise criteria (66 dBA in residential areas). This was done using future traffic volumes under LOS D conditions, where traffic is heavy, but still moving at near the speed limit (noise levels increase with speed). The TNM indicated that for most of the corridor noise levels exceeding the applicable noise level criterion of 66 dBA (residential areas) would extend about 500 feet from the roadway centerline on either side of the road. A review of residential locations adjacent to the roadway was performed. It considered whether dwelling units had front row (direct) exposure or second row (shielded) exposure. For apartment areas consideration was given to the number of first, second and third floor apartments and whether the apartments were on the side of the building facing I-465. Generally, only first floor apartments facing the highway were considered likely to benefit from noise mitigation.

The result of this analysis found that many locations hold the potential for noise mitigation.

INDOT's Noise Policy states that $30,000 is the maximum acceptable cost per benefited receiver.

If up to $30,000 were expended per benefiting dwelling unit, then analysis finds a potential for:

- Spending $13.6 million for barriers (assumed at this point to be walls ranging from 10 to 18 feet tall and costed as such);
- Extending 47,600 feet, or 9 miles (counting walls on both sides of the freeway); and
- Reducing noise levels by at least 5 dBA for 900 receptors/dwelling units.

At the completion of the final noise analysis conducted during the design phase, a presentation of noise wall locations will be made to the public at a public information meeting, which will be held prior to the start of construction. See Figure 4-1 for areas where noise walls will be and will not be likely reasonable and feasible. Final decisions about specific noise abatement shall be made after public involvement and design engineering concerns have been addressed.

During construction, noise will be generated by construction equipment. This will be of limited duration and will cease upon completion of the project. The contractor shall be required to make every effort reasonable to minimize noise by selecting construction methods, work-hour controls, muffler maintenance, selection of haul routes, and enforcement of operations in ways that are considerate of residences. Local residents should be provided with information on the expected type and duration of construction.

4.10 Energy Impacts

The construction of the Preferred Alternative will reduce regional transportation operating energy. These savings should outweigh construction energy requirements over the life of the project, thus resulting in a net savings in energy use over the long term. The new alignment will be the same distance as the current route, 11 miles, however, vehicle speed changes and idle time will be reduced.

4.11 Water Quality Impacts

This project should have minimal impacts on the quality of surface or groundwater, or the level of the groundwater table. The project will not result in waterborne roadway pollutants being discharged at new locations. There are well defined ditches on both sides of I-465. They will either be relocated 25

to 30 feet away from the roadway, or routed through an enclosed drainage or culvert system. Construction specifications include temporary and permanent erosion controls, and controls on the use, storage, and disposal of construction materials to protect water quality. The area near the project

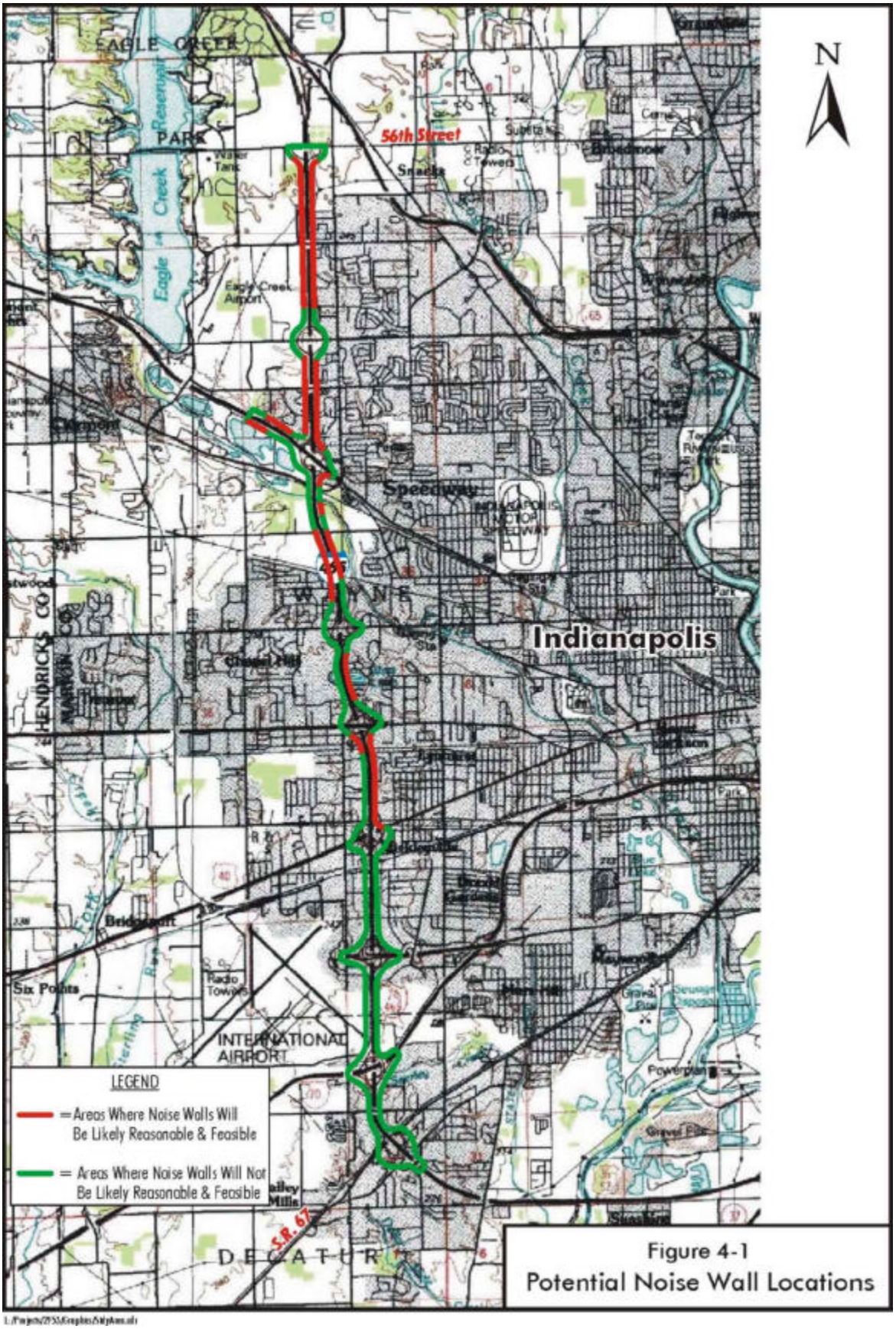


Figure 4-1
Potential Noise Wall Locations

is drained by an open ditch system which outlets into tributaries of Big Eagle Creek, which drains into White River, which is a tributary of the Wabash River.

Early coordination with the Indiana Department of Environmental Management (IDEM), prompted a number of comments regarding potential mitigation measures to preserve water quality. These are contained in their letter dated January 25, 2002 in Appendix A and are shown in Chapter 5. In summary, they outline needs for:

- Limiting physical disturbance of stream and riparian vegetation, especially large trees overhanging any affected waterbodies to that absolutely necessary to complete the project.
- Using appropriate structures and techniques during and after construction to minimize soil erosion: straw bale barriers, silt fencing, or earthen berms.
- Section 401 and 404 permits from IDEM and the US Army Corps of Engineers, respectively, if dredging and filling in wetlands and in waters of the State of Indiana occurs;
- A Rule 5 Storm Water Permit from the Office of Water Quality for construction;
- Approval from the IDNR, Division of Water, for construction in floodways; and,
- Consultation with IDNR, Division of Fish and Wildlife regarding potential adverse impacts on fish and botanical resources.

4.12 Permits

An "individual" Department of the Army, Corps of Engineers permit under Section 404 of the Clean Water Act{xe "Clean Water Act"} will be required (see Appendix C for the plan for fill materials based on INDOT's standard form).

Section 401 water quality certification{xe "401 water quality certification"} will be required from the IDEM. This certification is required by the Corps of Engineers{xe "Corps of Engineers"} prior to Corps issuance of the Section 404 permit.

A Rule 5 Storm Water Permit for construction activity that disturbs five acres or more of total land area will be required from the IDEM (see letter in Appendix A dated January 25, 2002).

Pursuant to the Flood Control Act (IC 14-28-1), an IDNR Construction in a Floodway Permit will be required, because the new route will occupy the floodplain of Farley/Topp Creek, Big Eagle Creek, Mud Run, and Dry Run {xe "Little Honey Creek"}{xe "Little Honey Creek"}.

4.13 Water Body Modification and Wildlife Impacts

The project will not result in the relocation of the channel of any watercourse.

Data from the Indiana Department of Natural Resource's Natural Heritage Program have been checked and, to date, no plant or animal species listed as state- or federally-threatened, endangered, or rare have been reported to occur in the project vicinity (see letter dated March 21, 2002 in Appendix A).

The project will be located in a developed urban area. Any land used will be from existing right-of-way or from the frontage of residential, commercial, institutional, or light industrial uses.

Possible mammals in the area include: deer, raccoons, skunks, opossums, fox squirrels, eastern cottontail rabbits, mice, chipmunks, voles, and woodchucks. In addition to mammals, habitat has found to be suitable for common songbirds, owls, thrushes, vireos, woodpeckers, sparrows, blackbirds, and cowbirds.

4.14 Impacts to Federally Threatened and/or Endangered Species

This project is within the range of the federally endangered Indiana bat (Myotis sodalis) and the federally threatened bald eagle (Haliaeetus leucocephalus). No suitable habitat for either of these species is located within the project area. This project will not affect any federally threatened or endangered species.

The USF&WS indicated the project is not likely to adversely affect any federally threatened or endangered species. They stated "This precludes the need for further consultation on this project as required under Section 7 of the Endanger Species Act of 1973, as amended." (see letter dated February 13, 2002 in Appendix A).

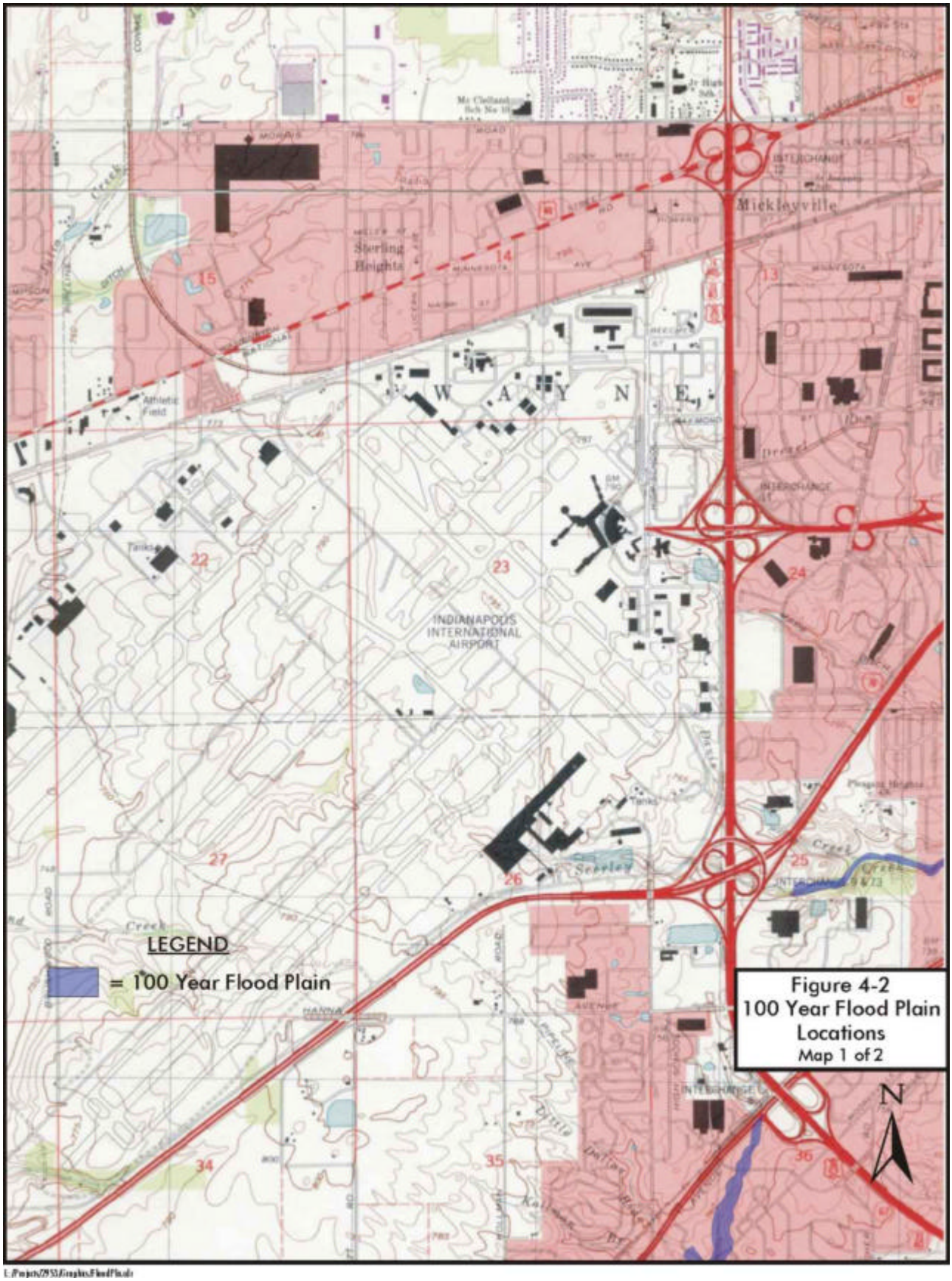
4.15 Floodway and Floodplain Impacts

Floodway analysis has been performed consistent with 23 CFR 650 and Executive Order 11998{xe "Executive Order 11990"}. Big Eagle Creek{ XE "Little Pigeon Creek" } is a regulatory floodway where it is crossed by the alignment. The right-of-way at the bridge over Big Eagle Creek will remain the same; however, the bridge will be widened. The alignment will continue to encroach on the floodway fringe (i.e., 100-year floodplain) of Farley/Topp Creek, Big Eagle Creek, Mud Run, and Dry Run.

Figure 4-2 shows the approximate limits of the 100-year floodplain (the floodway and floodway fringe). The map is based on the Federal Emergency Management Agency's maps of Marion County. Risk assessment sheets have been filled out for four locations (Appendix B): 1) Farley/Topp Creek, 2) Big Eagle Creek, 3) Mud Run, {xe "Honey Creek"}and 4) Dry Run{xe "Little Honey Creek"}.

Floodplain analysis must examine whether a project creates or increases a hazard to people and/or property, and whether there is an impact on natural and beneficial floodplain values{xe "floodplain values"}. These values include: fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

There are homes located within the base floodplain within 300 meters (1,000 feet) of the encroachments. All new structures will have effective capacities such that backwater surface elevations are not expected to significantly increase. Thus, no significant hazard to people or property is expected to result from the project.


Mickleyville
Sterling Heights
INDIANAPOLIS INTERNATIONAL AIRPORT
LEGEND
= 100 Year Flood Plain
Figure 4-2
100 Year Flood Plain Locations
Map 1 of 2
N

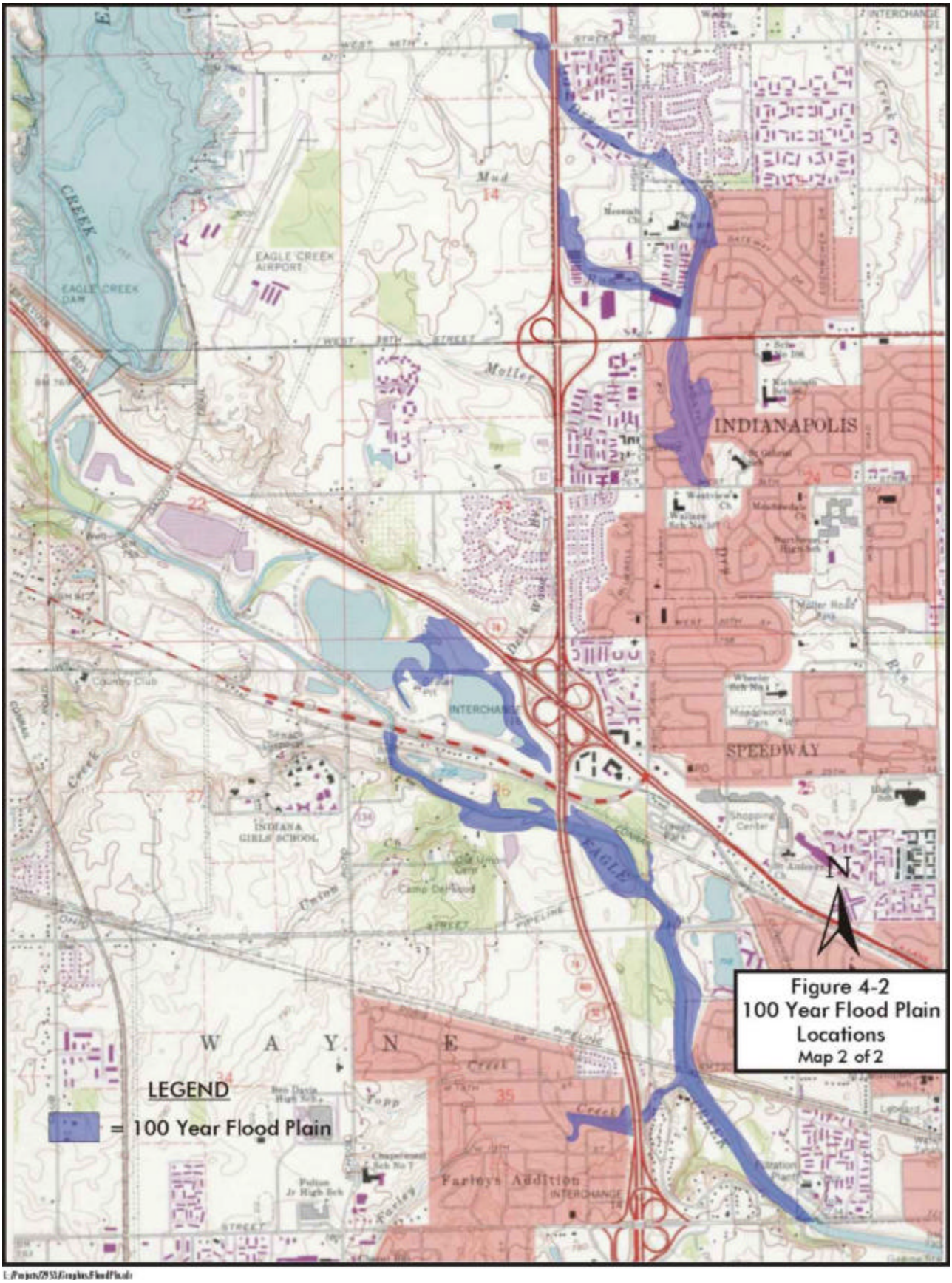


Figure 4-2
100 Year Flood Plain Locations
Map 2 of 2

There will be no significant impacts on natural and beneficial floodplain values; there will be no significant change in flood risks; and, there will be no significant increase in potential for interruption or termination of emergency service or emergency evacuation routes; therefore, it has been determined that this encroachment is not significant. Structures will be designed to prevent the base floodplain elevation from rising more than 1/10 of a foot.

A hydraulic design study that addresses various structure size alternatives will be completed during the preliminary design phase. A summary of this study will be included with the Field Check Plans and also in the Design Summary.

4.16 Impacts Upon Wild and Scenic Rivers

At present, there are no federally-designated Wild and Scenic Rivers located in Indiana.

4.17 Contaminated Sites

A Project Area Contamination Survey[3] was conducted to investigate parcels of property potentially affected by the project for the presence of environmental contamination and to determine whether further investigation or remediation is needed.

The assessment for contamination included: drive-by field reconnaissance; review of federal and state environmental databases; and, review of selected historical land use records. The survey did not include any on-site inspections of properties or interviews with owners or occupants. The survey assessed commercial and industrial properties along the corridor. Residential and institutional properties were not covered as there were no specific observations or reported indications of contamination. Sites are summarized in Table 4-4. Locations are shown on Figure 4-3. A summary of the analysis from the Project Area Contamination Survey follows.

Review of federal environmental databases did not identify any listed active Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or National Priorities List (NPL) (Superfund) sites within approximately one mile of the project corridor. There are two CERCLIS sites that are listed as "No Further Remedial Actions Planned" (NFRAP) within ½ mile of the corridor. Seven Resource Conservation and Recovery Act (RCRA) sites that treat, store and/or dispose (TSD) of hazardous materials or are large quantity generators (LQGs) of hazardous waste were identified within the project corridor.

Twenty-nine Underground Storage Tank (UST) sites were identified within the project corridor including sites with operating USTs and sites that have removed USTs. Twenty-one Leaking Underground Storage Tank (LUST) sites were identified including active and inactive cases. Impacts from area LUST sites include soil and groundwater contamination.

Several facilities within the project corridor have had documented spills of various materials. Several spills involving jet fuel have occurred at the Indianapolis International Airport.

The following facilities/sites appear to represent the most concern for the I-465 improvement project based on available records, proximity to the project or on observed site conditions: Indy Railway

[3] "Project Area Contamination Survey," The Corradino Group, February 2002.

Table 4-4
Summary of Environmental Records for I-465 Sites

SID[1] No.	Site Name (Former Name or Use)	Address or Location	Federal Records				State Records			
			CERCLA[2]	RCRA[3]	ERNS[4]	FINDS[5]	SPILL[6]	UST[7]	LUST[8]	Other[9]
1	Closed (Marathon Oil Co Unit 2209)?	4715 Kentucky Ave				X		X	X	
2	Swifty Service Station #238	4751 Kentucky Ave				X		X	X	
3	International Aerospace Tubes/Sure Start	4760 Kentucky Ave		X		X	X			X
4	Indy Railway Service Corp.	6111 W Hanna Ave								X
5	Cra-Wal	4001 S High School Rd				X				
6	Alamo Rent-A-Car	3730 S High School Rd				X		X		
7	Federal Express Corp.	3502 S High School Rd		X	X	X		X	X	
8	Vincent Metals	3334 Rand Rd				X		X		
9	Tynan Equipment Co.	5926 Stockberger				X		X		
10	Allison Transmission	5601 Fortune Circle S		X						
11	Lilly Aviation Facility	2800 S High School Rd				X		X		
12	Indiana Eby-Brown Corp.	5820 Fortune Cir W						X	X	
13	Speedway International Trucks	5730 Fortune Cir W				X		X	X	
14	Amr Combs International, Inc.	2600-40 S High School Rd				X	X	X	X	
15	Hertz Indianapolis	2621 S High School Rd				X		X	X	
16	Holiday Inn Airport	2501 S High School Rd				X		X	X	
17	Indianapolis Airport Authority	2500 S High School Rd			X	X	X	X	X	
18	Cardiovascular Laser Systems	2431 Directors Row		X						
19	Power Train Services, Inc.	2334 Production Dr	X	X		X				
20	Detrex Corp. Solvent & Env. Serv.	2263 Distributors Dr	X	X	X	X	X			
21	Avis Rent A Car	6050 W Raymond St						X	X	
22	National Rent A Car	6100 W Raymond St				X		X		
23	Amoco Station	Raymond@ S High School								
24	Autotrim Design (AB Dick)	2101 Directors Row				X	X			X
25	Truegreen Chemlawn	2121 Directors Row					X		X	
26	Briggs Transportation Co.	5751 W Dividend Dr		X		X				
27	Budget Rent A Car	6150 W Minnesota St				X		X	X	
28	Thrifty Car Rental	6175 W Minnesota St						X	X	
29	Carl Ritchie	6200 W Washington				X		X	X	
30	McQuiks 9616	6240 W Washington				X		X	X	
31	Johnsons Bigfoot (Sunoco Station)	6302 W Washington				X		X	X	
32	ACE Rent A Car, Inc.	5806 W Washington				X	X	X	X	
33	Speedway 5351	6302 Rockville Rd				X		X	X	
34	Citco	14 Beachway Dr								X
35	Port O Call	11 Beachway Dr				X				X
36	Lakeview Christian Academy	47 Beachway Dr				X				
37	Wayne Twp Fire Dept., Inc.	700 N High School Rd				X		X		
38	Shell Dealer Indpls W 10th/Glen Arm	6402 W 10th St				X		X	X	
39	Amoco	6315 Crawfordsville Rd				X		X		
40	Shell Service Station	2540 N High School Rd				X		X		
41	Sunoco Service Station/Bigfoot 072	2610 N High School Rd				X		X		
42	Shell Service Station	3702 N High School Rd						X		
43	Amoco (Jacksons Standard)	6279 W 38th						X	X	
44	Speedway/Sm #5507	6315 W 56th St							X	

[1]SID No. - Site Identification Number
[2]CERCLA - Comprehensive Environmental Response, Compensation and Liability Act (Superfund), includes National Priority Listed (NPL) sites. Source: US EPA.
[3]RCRA - Resource Conservation and Recovery Act, includes permitted hazardous waste treatment, storage and/or disposal (TSD) facilities and waste generators, which are defined as conditionally exempt generators (CEG), small quantity generators (SQG), large quantity generators (LQG), non-handlers (NH), and former generators that are now closed (Closed); NR - Not reported. Source: US EPA and IDEM.Only TSDs and LQGs are listed in table.
[4]ERNS - Emergency Response Notification System; includes spill incidents reported to the US Coast Guard; Source: US EPA.
[5]FINDS - Facility Identification Notification Data System; includes facility information for all EPA-regulated facilities; Source: US EPA.
[6]Indiana Spill - Contains reported spills of hazardous and petroleum materials; Source: IDEM.
[7]UST - Underground storage tank; registered tanks that are currently operating or that have been taken out of service (closed) or removed. Source: IDEM.
[8]LUST - Leaking underground storage tank; includes active case and closed cases; Source: IDEM.
[9]Other - These sites were included in other state databases or were identified as potentially contaminated based on observed conditions or activities.

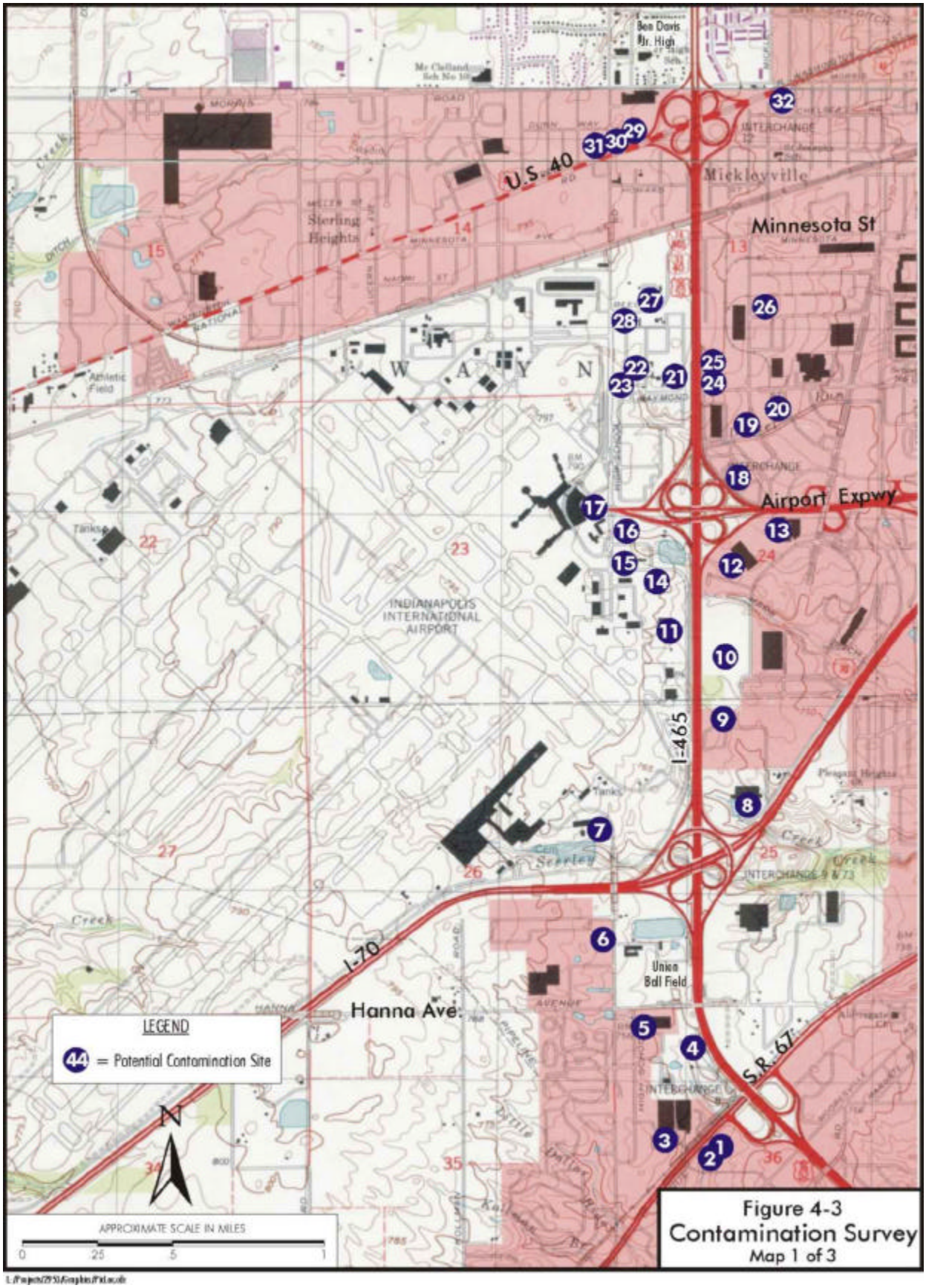
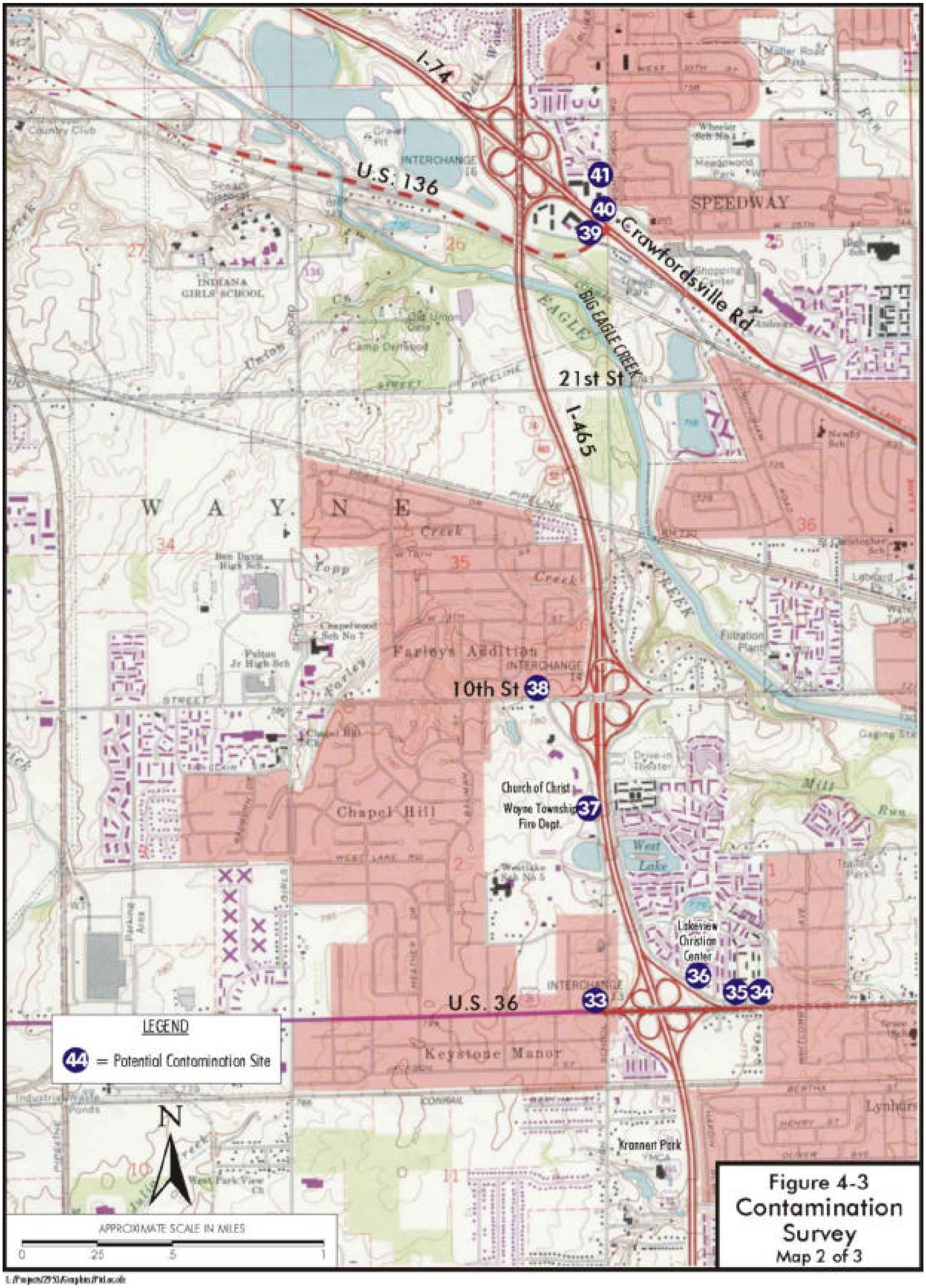


Figure 4-3
Contamination Survey
Map 1 of 3


I-74
U.S. 136
Crawfordsville Rd
SPEEDWAY
BIG EAGLE CREEK
21st St
I-465
W A Y N E
10th St
Church of Christ
Wayne Township
Fire Dept.
Lakeview
Christian
Center
U.S. 36
LEGEND
= Potential Contamination Site
N
APPROXIMATE SCALE IN MILES
0
.25
.5
1
Figure 4-3
Contamination
Survey
Map 2 of 3

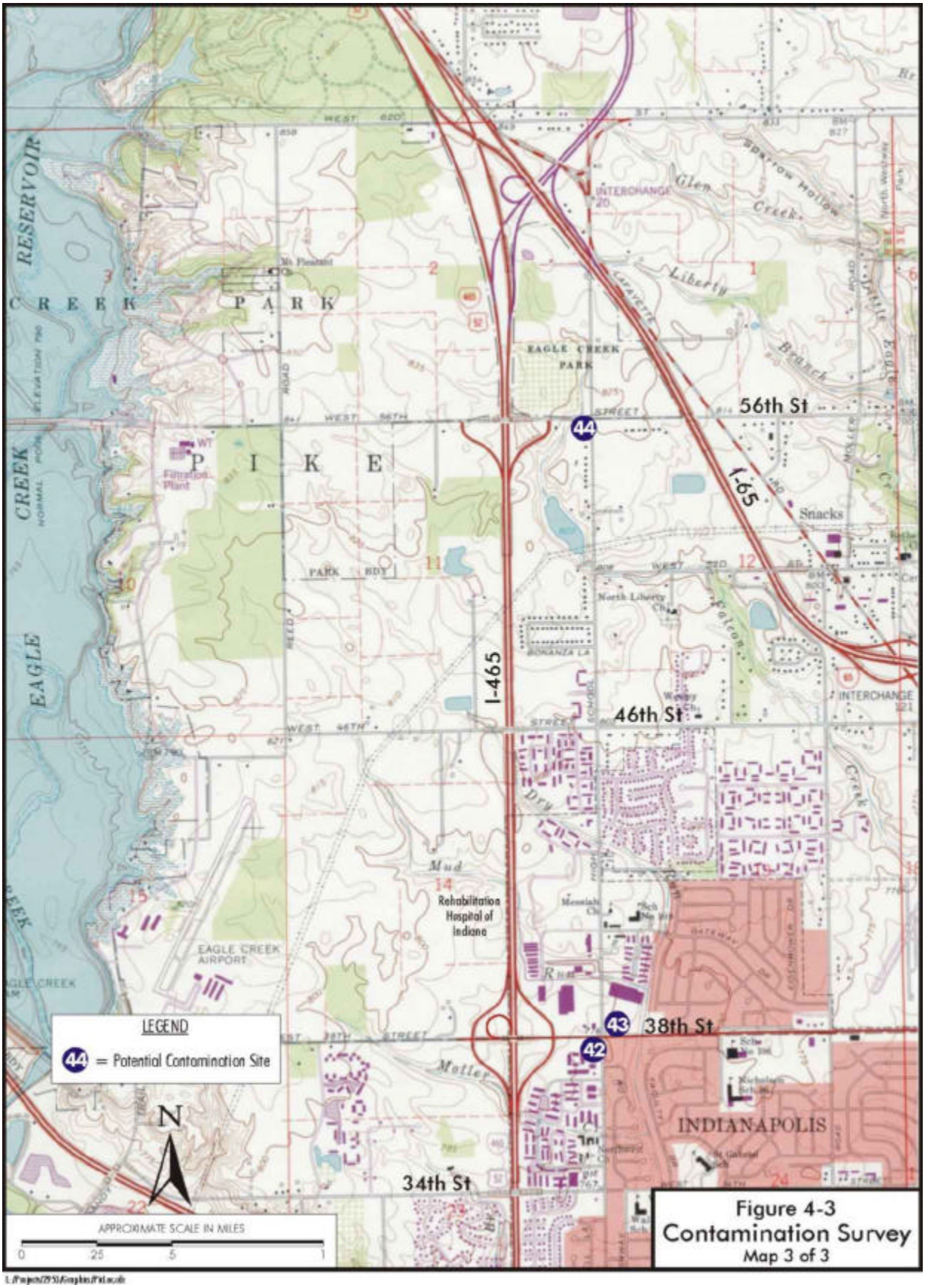


Figure 4-3
Contamination Survey
Map 3 of 3

Service Corp. (site 4), Detrex Corp (site 20), Autotrim Design (A.B. Dick) (site 24), and Truegreen Chemlawn (site 25).

In summary, leaking underground storage tank sites appear to be the most common potential contamination problem within the study area. Additionally, some of the industrial sites along I-465, which may or may not be listed in a state or federal environmental database, could also affect the project because of the use of hazardous materials in an era prior to modern environmental laws and regulations. As the project moves forward, and the new right-of-way requirements become fully defined, additional investigation for contamination should be conducted.

4.18 Wetlands

A Preliminary Wetlands Investigation Report[4] on file at INDOT finds that 11 wetland areas located within the project right-of-way could be directly impacted by the project and will require mitigation (see Figure 4-4). The approximate acreage of direct wetland impacts is 2.77 acres. These will be mitigated in accordance with the Wetlands Memorandum of Understanding (MOU) agreed to January 28, 1991, by INDOT, the US Fish and Wildlife Service (USF&WS), and IDNR. That MOU established replacement ratios for different types of wetlands. Using those replacement ratios (2 or 3:1), the number of replacement wetlands should be approximately 5.5 to 8.3 acres. Information about wetland impacts is summarized in Table 4-5. The majority of the wetlands impacted are less than one acre and are associated with intermittent streams or ditches and are of medium or low quality. The primary function of these wetlands is stormwater conveyance and storage. These wetlands also provide urban wildlife habitat.

The project crosses Big Eagle Creek, wetland ID W11; however, this wetland is not anticipated to be impacted. Man-made ponds, like wetland W2, are not currently recognized as jurisdictional wetlands by the Louisville District Corps of Engineers. West Lake, which is between US 36 and 10th Street, is not expected to be impacted by the project.

Wetlands were identified for the recommended alternative using the Corps of Engineers Wetland Delineation Manual (January 1987) and Corps guidance documents and regulations. Jurisdictional determinations for other "waters of the United States" were made based on definitions and guidance found in 33 CFR 328.3, Corps Regulatory Guidance Letters. The "Classification of Wetlands and Deepwater Habitat of the United States," (US Department of Interior, Fish and Wildlife Service, December 1979) was used to classify and describe wetland areas. National Wetland Inventory maps prepared by USF&WS were also consulted.

Wetlands were a primary consideration in the selection of the Recommended Location Alternative identified in the *Engineer's Report*. All potential alternatives affected wetlands. The No Action Alternative would take no wetlands, but does not meet the purpose and need of the project. Based on the planning level estimates in the *Engineer's Report*, the preferred alternative avoids wetlands to the extent practicable. Where avoidance is not possible, effects have been minimized and will be mitigated.

[4] "Preliminary Wetlands Investigation Report," The Corradino Group, June 2002.

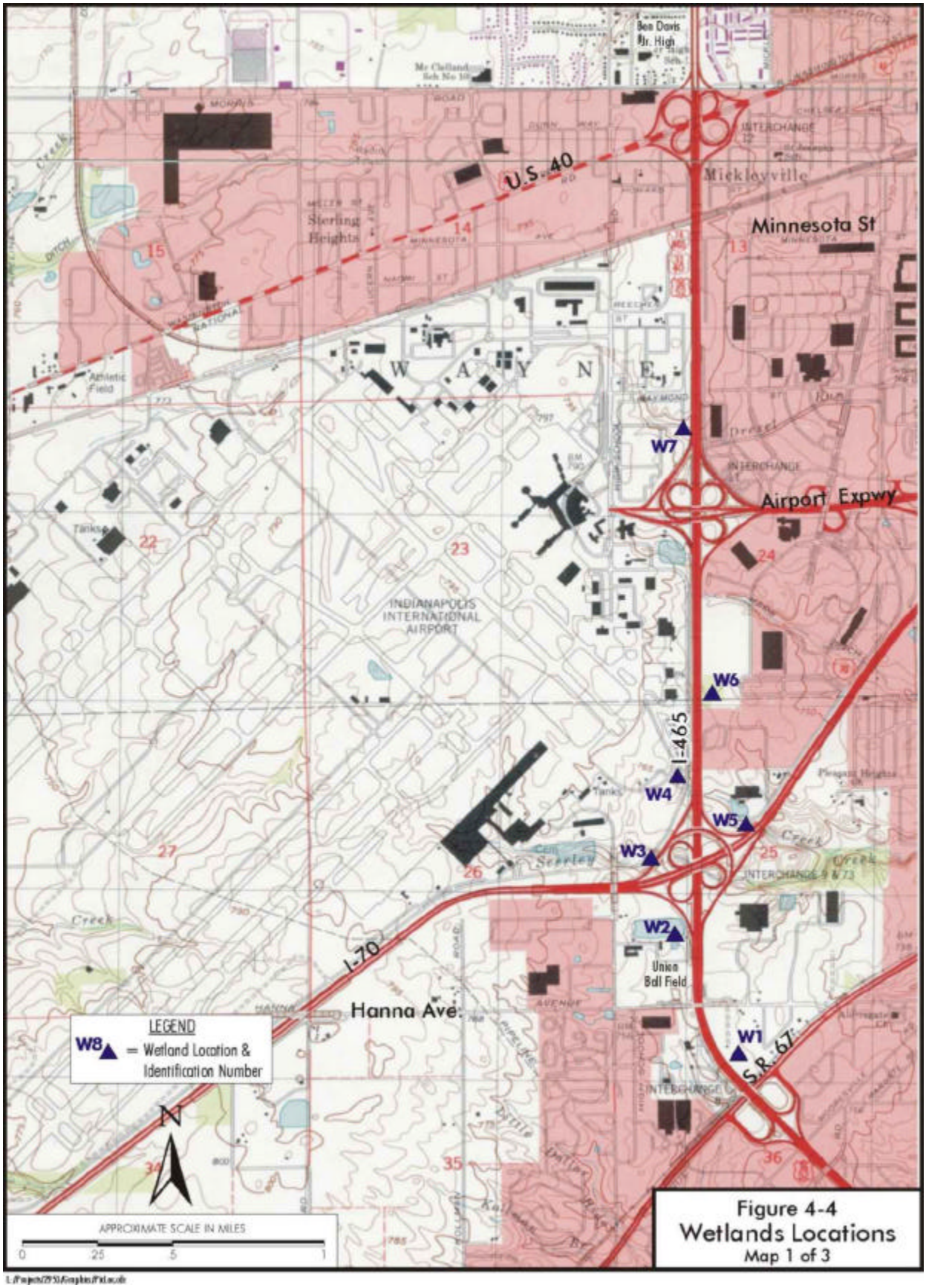


Figure 4-4
Wetlands Locations
Map 1 of 3

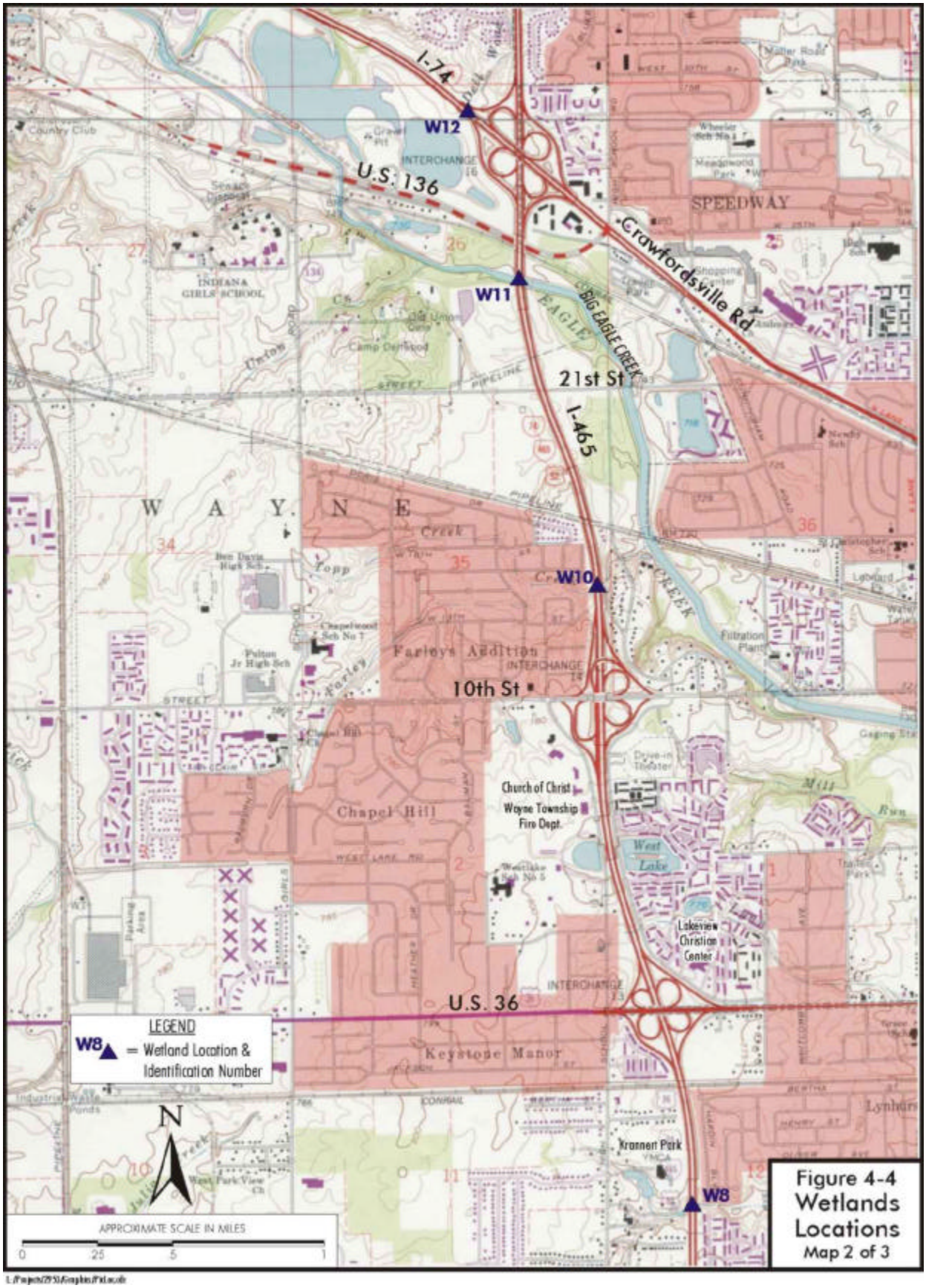


Figure 4-4
Wetlands Locations
Map 2 of 3

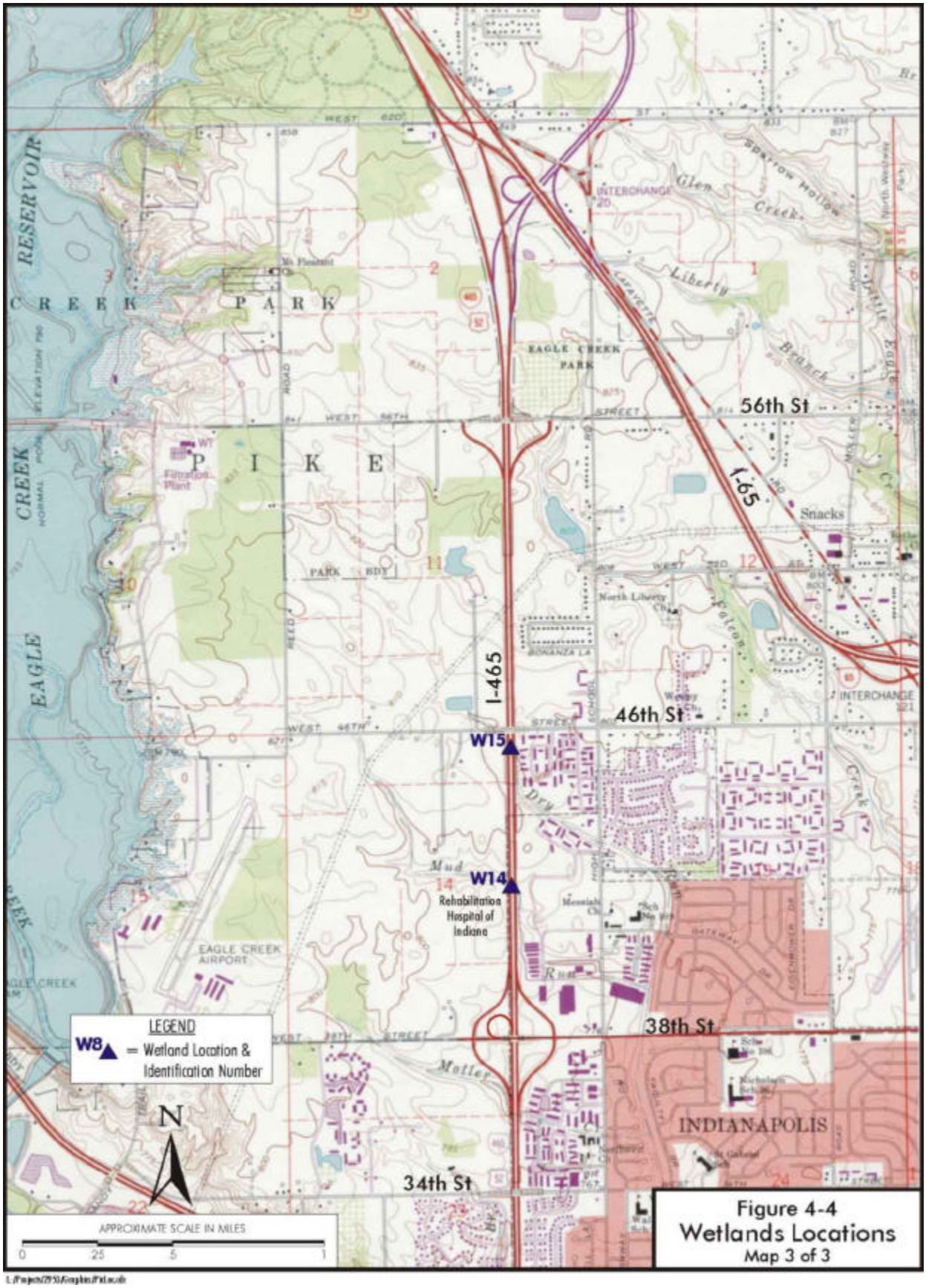


Figure 4-4
Wetlands Locations
Map 3 of 3

Table 4-5
Summary of Wetland Characteristics

Wetland ID	Wetland Community Classification[1]	Priority Class[2]	Regulated?[3]	Estimated Impact by Type (Acres)					Description
				PFO	PEM	POW	PEM/PSS	Total	
W1	PFO	3	Y	0.34				0.34	Forested wetlands;ash, elm, dogwood.
W2	POW	3	N			5.65		5.65	Man-made pond; 1.38 acres in right-of-way.
W3	PEM	3	Y		0.38			0.38	Seerley Creek rechannelized; cattails are dominant.
W4	PEM	3	Y		0.03			0.03	Davis Creek rechannelized at edge of right-of-way; cattails and grasses along fringes.
W5	PEM/PSS	3	Y				0.03	0.03	Shrub/scrub and emergent wetlands;ash, elm, dogwood.
W6	PEM/PSS	3	Y				0.04	0.04	Drainage ditch; ash, cattails, grasses.
W7	PEM	3	Y		0.03			0.03	Drexel Run rechannelized; cattails & grasses.
W8	PEM/PSS	3	Y				0.06	0.06	Neeld Ditch; ash, willow, honeysuckle, grasses.
W10	PEM/PSS	3	Y				0.07	0.07	Farley-Topp Creek:cherry, ash, oak, honeysuckle grasses.
W11	PEM/POW	1	Y					0.00	Eagle Creek- No impact anticipated.
W12	PEM/PSS	3	Y				0.18	0.18	Dellwood Creek at I-74; willow, privot, boxelder, jewellweed.
W14	PEM/PSS	2	Y				1.08	1.08	Mud Run, channelized along road; ash, cottonwood, dogwood, buckeye, boxelder, mayapple, creeper.
W15	PEM	3	Y		0.53			0.53	Dry Run, channelized along road;cattails, Juncus, grasses.

[1] PFO - Palustrine Forested; PEM - Palustrine Emergent; PSS - Palustrine Shrub-Scrub; POW - Palustrine Open-Water.

[2] Priority classes applied to this project are as follows: 1 - highest quality; 2 - medium quality; and 3 - lowest quality.

[3] Preliminary determination. Final determinations will be made by COE and IDEM.

Only Practicable Alternative Finding

This document has been prepared in compliance with the provisions of executive order 11990 "protection of wetlands." Based on the above considerations, it has been determined that there is no practicable alternative to the proposed new construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

4.19 Visual Impacts

Visual impacts can be considered in terms of "view of the road" and "view from the road." Over most of the alignment the view of the road would remain unchanged as any widening will occur within or along the existing right-of-way and not on new alignments. There would be a new flyover ramp at the I-74 interchange. Currently there are no flyover ramps at this interchange.

The "view from the road" would also remain unchanged. Over the corridor the setting would remain mostly institutional (airport), residential, and commercial.

4.20 Construction Impacts and Considerations

There would be temporary traffic, noise, air quality, and water quality impacts during the construction period.

Standard INDOT-specified measures will be used to control erosion during construction. Also, a April 26, 1994 memorandum from the Office of the President directs that for federal actions agencies "use regional native plants for landscaping; design, use, or promote construction practices that minimize adverse effects on the natural habitat; and implement water-efficient practices, such as the siting of plants in a manner that conserves water and controls soil erosion."

Noise levels of construction equipment are regulated by the US Environmental Protection Agency. Worker exposure to noise is controlled by the Occupational Health and Safety Administration. Together these help mitigate construction noise. Contractors would have to conform to local noise ordinances. Contractors would also be subject to proper disposal of waste construction debris. This would include proper treatment of potential asbestos-containing material.

Contractors will be required to observe the requirements of 326 IAC 6-4 Fugitive Dust Rule and 8-5 Asphalt Paving Rule, which ensure that asphalt paving plants are permitted and operate properly.

4.21 Historical and Archaeological Preservation

For purposes of analysis cultural resources are usually categorized as above ground or below ground. Below ground resources are generally described as archaeological resources and may have prehistoric or historic components, or both. Prehistoric components refer to cultural materials from the time prior to European contact. Historic components include old building foundations, artifacts, and the like, from early settlement. Above ground resources generally refer to standing structures whose value may derive from architectural elements or from importance to history. Cultural resources have been evaluated for potential eligibility for the *National Register of Historic Places*. Sites on or eligible for the *National Register* are afforded protection under federal law, which, simply stated, requires that such sites not be used if there is a prudent and feasible alternative that avoids such use.

Cultural resource analysis begins with the identification of an Area of Potential Effect (APE). The APE was approved by FHWA on November 28, 2001. Next, potential consulting parties are contacted. These are individuals and organizations that may have an interest in the effects of the project on cultural resources. Then properties are identified that are on or potentially eligible for the *National Register* and a determination is made in conjunction with the Federal Highway Administration and State Historic Preservation Office whether there are adverse effects on any such properties.

The Federal Highway Administration made their findings and determinations for the APE, eligibility for the National Register, and effects on August 28, 2002 (See Appendix D for FHWA's Section 106 Findings and Determinations). They found that there are no known eligible National Register properties, buildings, structures, or sites within the confines of the APE.

4.21.1 Archaeological Sites

The area to be impacted by this project is urban in nature and has been previously disturbed. Archaeological Resource Management Services at Ball State University performed an archaeological records review. They found three archaeological sites within one mile of the proposed project area. None of these sites are located within the area of potential effect. Due to the land in the area already being disturbed Archaeological Resource Management Services recommended no further archaeological assessment for the project area.

The State Historic Preservation Officer (SHPO) has stated "…most of the project area has already been disturbed by modern construction. However, some of the open land, as well as locations to be used for borrow or disposal, may not have been disturbed. Given the aforementioned factors, a reconnaissance level archaeological survey will be required of all portions of the project area that have not been previously disturbed by urban construction." (See letter dated March 20, 2002 in Appendix A.)

Following the SHPO's March 20, 2002 letter, the archaeological records review from Archaeological Resource Management Services from Ball State University was forwarded to the SHPO. Upon the SHPO's review of this report, the SHPO stated: "Based upon the documentation available at the Indiana SHPO, we have not identified any historic buildings, structures, districts, objects, or archaeological resources listed in or eligible for inclusion in the National Register within the probable area of potential effects. This identification is subject to the following condition: 1) the project activities remain within areas disturbed by previous construction." (See letter dated May 8, 2002 in Appendix A.)

If any archaeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, the discovery will be reported to the Department of Natural Resources within two business days and the Advisory Council on Historic Preservation will be contacted.

4.21.2 Above Ground Resources

The *National Register of Historic Places* and the *State Register of Historic Sites and Structures* were reviewed for resources in the study corridor. No sites on the *National Register of Historic Places* or the *State Register of Historic Sites and Structures* were found.

Additional information was available from the *Interim Reports for Wayne Township, Decatur Township, and Pike Township in Marion County*.[5] No sites listed as "outstanding" or as "notable" were found within the Area of Potential Effect (APE).

A rating of "outstanding" means that the property has enough historic or architectural significance that it is already listed or should be considered for listing in the *National Register of Historic Places*. A rating of "notable" means that the property did not merit an "outstanding" rating, but is still above average in importance. Further research or investigation may reveal that the property could be eligible for the *National Register*.

The State Historic Preservation Officer (SHPO) has stated, " Based upon the documentation available at DHPA, we have not identified any historic buildings, structures, districts, or objects listed in or eligible for inclusion in the National Register within the probable area of potential effects." (See letter dated March 20, 2002 in Appendix A.)

A public meeting was held on March 14, 2002 at Ben Davis Junior High School. Approximately 200 people attended the meeting. There were no comments from the public identifying potential historic resources that would be affected by the project.

The consulting parties were sent FHWA's finding of no historic properties affected. Two consulting parties responded. Historic Indianapolis, Inc. stated that it is their position "that no historic properties are adversely affected by the proposed improvements to I-465." (See e-mail response dated October 14, 2002 in Appendix A). The SHPO concurred with the finding that there are no historic resources within the area of potential effects. (See letter dated October 18, 2002 in Appendix A).

4.22 Section 4(f) Impacts

This project will have no Section 4(f) impacts. No land from a publicly-owned park, recreation area, wildlife and waterfowl refuge, or significant historic or archaeological site will be required. Eagle Creek Park and Kranhert Park are the closest 4(f) properties to the project. Both of these will be avoided by the project. See Figure 1-1 for the locations of these parks.

4.23 Section 6(f) Impacts

This project will have no Section 6(f) impacts. No land that was acquired, improved, or developed with Land and Water Conservation Funds will be required.

4.24 The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance And Enhancement of Long-Term Productivity

Improvements to I-465 will cause disruption in the area for the short-term and will require the use and commitment of natural, physical, human, and fiscal resources including fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material. However, improvements

[5] *Wayne Township, Decatur Township, and Pike Township, Marion County Interim Reports, Indiana Historic Sites and Structures Inventory*, Historic Landmarks Foundation of Indiana, 1993, 1992, and 1994. Interim Reports are surveys of historic structures within a county. Ratings used in the Interim Reports include Outstanding, Notable, Contributing, and Non-Contributing.

will save travel time, reduce harmful emissions, and reduce crashes, thus increasing long-term productivity. Improvements to the corridor are consistent with the region's long-term transportation and land use planning.

4.25 Irreversible and Irretrievable Commitments of Resources Which Will Be Involved in the Proposed Action

Implementation of the proposed action involves the commitment of a range of natural, physical, human, and fiscal resources. Land used in the construction of the proposed facility is considered an irreversible commitment in terms of practical economics.

Considerable amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material will be expended. Additionally, large amounts of labor and natural resources are used in the fabrication and the preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use will not have an adverse effect upon continued availability of these resources. Any construction will also require a substantial one-time expenditure of both state and federal funds which are not retrievable.

The commitment of these resources is based on the concept that residents in the immediate area, state, and region will benefit by the improved quality of the transportation system. These benefits will consist of improved accessibility and safety, savings in time, reduced air pollution, and greater availability of quality services which are anticipated to outweigh the commitment of these resources.

5. MITIGATION

This chapter defines mitigation measures that will be implemented for this project.

The Standard Specifications of INDOT will be met, particularly those concerned with erosion, sediment control, re-vegetation, water pollution, air quality, solid and hazardous waste, and archaeology. Removal of vegetation and in-channel disturbance will be minimized. Temporary erosion and siltation control features such as placement of straw bales in drainageways and ditches, grading areas to retain runoff in basins, and covering exposed areas with burlap, jute matting, or straw will be utilized during the construction period. All disturbed soil areas will be re-vegetated immediately upon project completion. Low maintenance areas will be revegetated with a mixture of grasses (excluding all varieties of tall fescue), legumes, and native shrub and hardwood tree species. Inlets to storm sewers will be protected during construction, erosion control measures will be installed, and temporary seeding will be utilized where possible.

A Rule 5 Storm Water Permit for construction activity that results in the disturbance of five acres or more of total land will be obtained.

Approval for construction in a floodplain will be obtained from IDNR prior to any construction in a floodplain. A hydraulic design study that addresses various structure size alternatives will be completed during preliminary design.

Along Big Eagle Creek, no trees greater than 14 inches in diameter, living or dead, with loose hanging bark will be cut from April 15 to September 15. No work will occur in waterways from April 1 to June 30 without the prior written approval of the Division of Fish and Wildlife.

Unavoidable impacts to wetlands will be mitigated in accordance with Wetland and Habitat Mitigation Guidelines agreed to by INDOT, the US Fish and Wildlife Service, and IDNR. A Section 401 permit from IDEM and a Section 404 permit from the US Army Corps of Engineers will be obtained.

Contractors will be required to observe the requirements of 326 IAC 6-4 Fugitive Dust Rule and 8-5 Asphalt Paving Rule, which ensure that asphalt paving plants are permitted and operate properly. Areas where pigeons or bats have roosted for 3-5 years will be wetted down prior to demolition of a site.

The use of cutback asphalt, or asphalt emulsion containing more than seven percent oil distillate, will not be used during the months of April through October.

A detailed noise study will be conducted during final design to determine where noise barriers are feasible and reasonable.

Noise levels of construction equipment are regulated by the US Environmental Protection Agency. Worker exposure to noise is controlled by the Occupational Health and Safety Administration. Together these will help mitigate construction noise. Contractors would have to conform to local noise ordinances. Contractors would also be subject to proper disposal of

waste construction debris. This would include proper treatment of potential asbestos-containing material.

The Office for Land Quality will be contacted if the site is found to contain any areas used to dispose of solid or hazardous waste, if contaminated soils are discovered, if PCB wastes are discovered, or if asbestos wastes are discovered. When final right-of-way requirements become fully defined, additional investigations will be conducted on any potentially contaminated sites.

Light rail corridors have been taken into account and no known design options for light rail have been foreclosed. The proposed Greenway Trails that cross I-465 at Big Eagle Creek and at the former B and O rail line south of Big Eagle Creek will be maintained. Primary bike routes, where crossed by I-465, will be accommodated with bike lanes on structures. Secondary routes will be accommodated with sidewalks or sidewalks and width for bike lanes.

If any archaeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, the discovery will be reported to the Department of Natural Resources within two business days and the Advisory Council on Historic Preservation will be contacted.

No right-of-way will be taken from Eagle Creek Park, Krannert Park, West Lake, or Ben Davis Junior High School.

Enclosed drainage may be used to minimize right-of-way in order to avoid residential and commercial relocations.

6. COMMENTS AND COORDINATION

This chapter reports on the public meeting held on the project, and the responses to the early coordination effort.

6.1 Activities Leading To Identification of a Preferred Alternative

An informational meeting was held for the I-465 improvements at Ben Davis Junior High School. The meeting was held on March 14, 2002{ XE "Heritage Hills High School" }. At the meeting, and in the weeks following them, people were allowed to submit comments about the project.

Approximately 200 citizens attended the information meeting. The most common comments that were heard from public speakers at the meeting or were received in the form of comment cards, letters, or e-mails were: what will be the impact to my property (9); the 56th Street interchange should be improved (7); noise is a problem (5); I-465 should be widened (4); drainage is a problem (2); and there should be no new signals at interchange ramp ends (2). There were also comments supporting: changing the cloverleaf interchanges; improving signage for the Indianapolis Motor Speedway; improving the Airport Expressway interchange; maintaining bike routes; improving Mann Road; and providing for a new outer beltway.

A series of interactive meetings were held that brought together representatives of various sections of INDOT including Environmental Assessment, Long-Range Planning, Engineering Assessment, Hearings, Project Management, Intelligent Transportation Systems, INDOT's Crawfordsville and Greenfield Districts, the Indianapolis Metropolitan Planning Organization, the Indianapolis Department of Public Works, the Federal Highway Administration, and project consultants. The purpose of the meetings was to discuss in an open forum the merits of various alternatives and design strategies in light of roadway capacity, safety, related projects, and the built and natural environments.

6.2 Agencies and Institutions Involved in the Early Coordination Process

Scoping{xe "Scoping"} responses were received from the agencies and organizations listed below. Their response letters are included in Appendix A in order by their mailing date.

- Indiana Department of Transportation, Greenfield District, January 2, 2002.
- Indiana Geological Survey, January 3, 2002.
- US Department of Agriculture, Natural Resources Conservation Service (NRCS), January 7, 2002.
- Indiana Department of Transportation, Aeronautics Section, January 8, 2002.
- Indiana Department of Environmental Management, January 25, 2002.
- US Army Corps of Engineers, January 29, 2002.
- US Department of Interior, Fish & Wildlife Service, February 13, 2002.

- Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology, State Historic Preservation Officer, March 20, 2002.
- Indiana Department of Natural Resources, Environmental Unit, March 21, 2002.
- Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology, State Historic Preservation Officer, May 8, 2002.
- US Environmental Protection Agency, Region 5, June 17, 2002.
- Historic Indianapolis, Inc., October 14, 2002.
- Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology, State Historic Preservation Officer, October 18, 2002.

Federal and State agencies to which early coordination packets were sent that did not respond were:

- US Department of Interior, National Park Service.
- US Department of Housing and Urban Development.

6.3 Consulting Parties for the Section 106 Process

The following groups and agencies are the consulting parties for the Section 106 process. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertaking on historic properties.

- State Historic Preservation Officer
- Federal Highway Administration
- Indiana Department of Transportation
- Historic Indianapolis, Inc.
- Marion County Historian

Other organizations that were requested to be consulting parties but did not respond or did not agree to be a consulting party included:

- Historic Landmarks Foundation, Inc.
- Indianapolis Historic Preservation Commission
- Decatur Twp. Historical Society

- Indiana Historical Bureau
- West Indianapolis Historical Society
- Wayne Township Historical Society
- Indiana Historical Society
- Meridian Street Pres. Comm.
- Historic Landmarks Foundation of Indiana, Central Regional Office
- Marion County Historical Society
- Pike Township Historical Society
- Indiana Junior Historical Society

APPENDIX A

EARLY COORDINATION CORRESPONDENCE

The following early coordination responses are included in this Appendix.

- Indiana Department of Transportation, Greenfield District, January 2, 2002.
- Indiana Geological Survey, January 3, 2002.
- US Department of Agriculture, Natural Resources Conservation Service (NRCS), January 7, 2002.
- Indiana Department of Transportation, Aeronautics Section, January 8, 2002.
- Indiana Department of Environmental Management, January 25, 2002.
- US Army Corps of Engineers, January 29, 2002.
- US Department of Interior, Fish & Wildlife Service, February 13, 2002.
- Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology, March 20, 2002.
- Indiana Department of Natural Resources, Environmental Unit, March 21, 2002.
- Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology, May 8, 2002.
- US Environmental Protection Agency, Region 5, June 17, 2002.
- Historic Indianapolis, Inc., October 14, 2002.
- Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology, State Historic Preservation Officer, October 18, 2002.

Federal and State agencies to which early coordination packets were sent that did not respond were:

- US Department of Interior, National Park Service.
- US Department of Housing and Urban Development.

APPENDIX B

FLOODPLAIN RISK ASSESSMENT SHEETS

RISK ASSESSMENT

Project No. IM-465-4( ) Date February 14, 2002

Structure No. None County Marion

Location Farley/Topp Creek

Stream Evaluator Richard Ray

1. Risks

A.	ADT (Construction Year)	<1000	1000-5000	(>5000)
B.	Homes in Base Floodplain			
	Upstream to 1000′	0	1-5	(5)
	Downstream to 1000′	0	(1-5)	5
C.	Adjacent Property Value	low	(Medium)	high
D.	Height of Fill **Unknown**	<10′	10′-25′	>25′
E.	Structure Type			
	(Box/pipe culvert)			
	Single span bridge			
	Three span bridge			
	Multiple span bridge			
F.	The encroachment is:	(Transverse)	Longitudinal	

		Yes	No
G.	Is stream unstable?		x
H.	Is this the only route for emergency access?		x
I.	Practicable detour?	x	
J.	Known drainage problems?		x
	(if yes, describe)		

2. What are the impacts on natural and beneficial floodplain values Natural moderation of floods, water quality maintenance, and groundwater recharge.

3. Will this project support probable incompatible floodplain development? If so, to what extent?
No

4. Possible measures to minimize the floodplain impacts, and/or restore and preserve the natural floodplain values impacted by this project. Build with a reduced median. Lower project profile. Steepen side slopes to reduce footprint of project.

5. Determination of significance: Impacts at this site are not considered significant.

RISK ASSESSMENT

Project No. IM-465-4( ) Date February 14, 2002

Structure No. None County Marion

Location Big Eagle Creek

Stream Evaluator Richard Ray

1. Risks

A.	ADT (Construction Year)	<1000	1000-5000	(>5000)
B.	Homes in Base Floodplain			
	Upstream to 1000′	(0)	1-5	5
	Downstream to 1000′	(0)	1-5	5
C.	Adjacent Property Value	low	(Medium)	high
D.	Height of Fill **Unknown**	<10′	10′-25′	>25′
E.	Structure Type			
	Box/pipe culvert			
	Single span bridge			
	~~Three span bridge~~			
	(Multiple span bridge)			
F.	The encroachment is:	(Transverse)	Longitudinal	

		Yes	No
G.	Is stream unstable?		x
H.	Is this the only route for emergency access?		x
I.	Practicable detour?	x	
J.	Known drainage problems?		x
	(if yes, describe)		

2. What are the impacts on natural and beneficial floodplain values Natural moderation of floods, water quality maintenance, and groundwater recharge.

3. Will this project support probable incompatible floodplain development? If so, to what extent?
No

4. Possible measures to minimize the floodplain impacts, and/or restore and preserve the natural floodplain values impacted by this project. Bridge over 100-year floodplain.

5. Determination of significance: Impacts at this site are not considered significant.

RISK ASSESSMENT

Project No. IM-465-4( ) Date February 14, 2002

Structure No. None County Marion

Location Mud Run

Stream Evaluator Richard Ray

1. Risks

A.	ADT (Construction Year)	<1000	1000-5000	(>5000)
B.	Homes in Base Floodplain			
	Upstream to 1000′	(0)	1-5	5
	Downstream to 1000′	(0)	1-5	5
C.	Adjacent Property Value	low	(Medium)	high
D.	Height of Fill **Unknown**	<10′	10′-25′	>25′

E. ~~Structure Type~~
(Box/pipe culvert)
Single span bridge
Three span bridge
Multiple span bridge

F. The encroachment is: (Transverse) Longitudinal

		Yes	No
G.	Is stream unstable?		x
H.	Is this the only route for emergency access?		x
I.	Practicable detour?	x	
J.	Known drainage problems?		x
	(if yes, describe)		

2. What are the impacts on natural and beneficial floodplain values Natural moderation of floods, water quality maintenance, and groundwater recharge.

3. Will this project support probable incompatible floodplain development? If so, to what extent?
No

4. Possible measures to minimize the floodplain impacts, and/or restore and preserve the natural floodplain values impacted by this project. Build with a reduced median. Lower project profile. Steepen side slopes to reduce footprint of project.

5. Determination of significance: Impacts at this site are not considered significant.

RISK ASSESSMENT

Project No. IM-465-4( ) Date February 14, 2002

Structure No. None County Marion

Location Dry Run

Stream Evaluator Richard Ray

1. Risks

A.	ADT (Construction Year)	<1000	1000-5000	(>5000)
B.	Homes in Base Floodplain			
	Upstream to 1000'	0	1-5	(5)
	Downstream to 1000'	0	1-5	(5)
C.	Adjacent Property Value	low	(Medium)	high
D.	Height of Fill **Unknown**	<10'	10'-25'	>25'
E.	~~Structure Type~~			
	(Box/pipe culvert)			
	Single span bridge			
	Three span bridge			
	Multiple span bridge			
F.	The encroachment is:	(Transverse)	Longitudinal	

		Yes	No
G.	Is stream unstable?		x
H.	Is this the only route for emergency access?		x
I.	Practicable detour?	x	
J.	Known drainage problems?		x
	(if yes, describe)		

2. What are the impacts on natural and beneficial floodplain values Natural moderation of floods, water quality maintenance, and groundwater recharge.

3. Will this project support probable incompatible floodplain development? If so, to what extent?
No

4. Possible measures to minimize the floodplain impacts, and/or restore and preserve the natural floodplain values impacted by this project. Build with a reduced median. Lower project profile. Steepen side slopes to reduce footprint of project.

5. Determination of significance: Impacts at this site are not considered significant.

APPENDIX C

404(B) CHEMICAL-BIOLOGICAL IMPACTS

404(B) Chemical-Biological Impacts

(1) Is the material to be discharged primarily sand and gravel or other particulate matter larger in size than silt?

Yes X No _____

(2) Is the material to be discharged for the purpose of beach nourishment or restoration and is it composed predominantly of sand, gravel, or shell with particle size equivalent to that already present?

Yes _____ No X

(3) (a) Is the material proposed for discharge substantially the same as the receiving substrate material?

Yes X No _____

(b) Is the site from which the material proposed for discharge to be taken, sufficiently removed from sources of pollution to provide reasonable assurance that such material is not contaminated?

Yes X No _____

(c) Can conditions be imposed on the subject discharge to provide reasonable assurance that the material will not be moved in a manner damaging to the environment outside the disposal site?

Yes X No _____

APPENDIX D

FEDERAL HIGHWAY ADMINISTRATION'S SECTION 106 FINDINGS AND DETERMINATIONS

Filename: I-465EA (missing some appendicies) to Rickie Clark 3-4-03.doc
Directory: F:\Civil\2953 INDOT I-465 EA\Word Processing\reports
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Title: FHWA-IN-EIS-99-01-F
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Author: Kim Holton
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